

SPOKANE
ORNAMENTAL IRON
AND
WIRE WORKS.

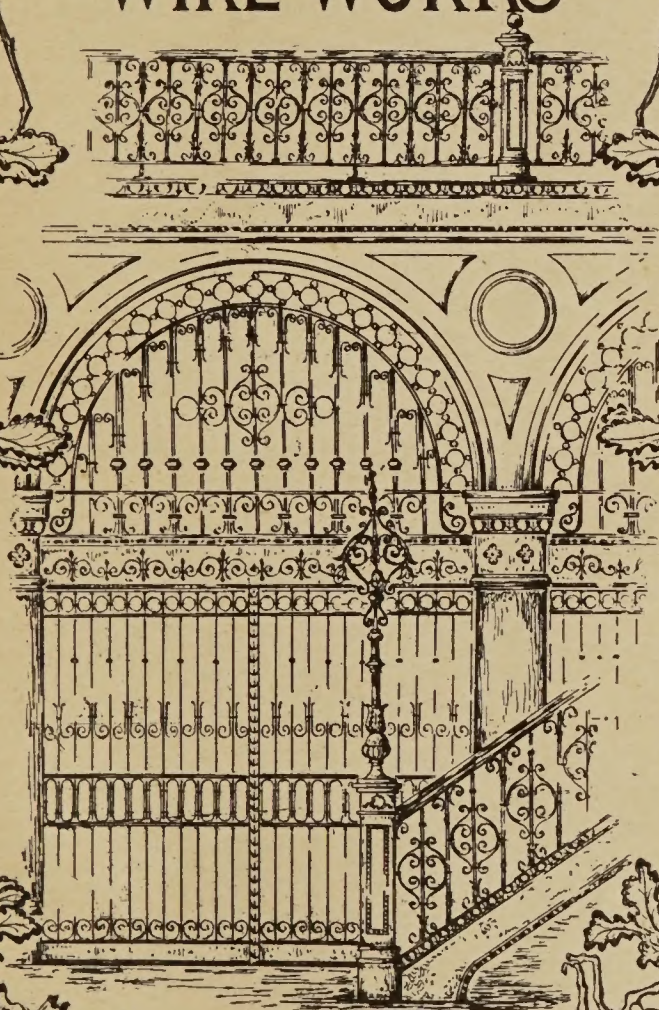
SPOKANE WASH.





J. G. Lewis

SPOKANE ORNAMENTAL IRON AND WIRE WORKS



PRESS OF
INLAND PRINTING COMPANY
SPOKANE, WASH.

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WE take pleasure to present to our many friends and patrons our first general catalogue and pocket companion for builders and contractors. Hoping that its contents may often be of benefit for its intended purpose and that it may tend to renew or strengthen our many pleasant previous business relations. We guarantee that no efforts will be spared to serve all, with the best our long experience and first-class facilities will produce.

Respectfully yours,

**SPOKANE ORNAMENTAL IRON
& WIRE WORKS,**

**Manufacturers of and Designers for
Ornamental Iron, Brass and Wire
Work for Buildings.**

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SPOKANE ORNAMENTAL IRON & WIRE WORKS.

Elevator Enclosure No. 710. 5-16 inch square steel, tubular frame, in black finish, \$2.00 per square foot; in electroplate finish, \$3.00 per square foot. Sliding doors with best anti-friction hangers and locks, \$10.00 each.

No. 711. Same construction as No. 710. In black finish, \$1.80 per square foot; in electroplate, \$2.80 per square foot. Doors same extra as above.

No. 712. Made of one-inch channel frame, flat Bessemer steel panels; in black finish, \$1.60 per square foot; in electroplate, \$2.60 per square foot. Sliding doors with best anti-friction hangers and locks, \$10.00.

No. 713. Same construction as No. 712. In black finish, \$1.00 per square foot; in electroplate finish, \$1.60 per square foot. Doors same extra as others.

We manufacture all the latest styles of center parting and two-third opening doors.

SHINGLES REQUIRED IN A ROOF.

To the square foot it takes 9 if exposed four inches; 8 if exposed $4\frac{1}{2}$ inches, and 7 1-5 if exposed 5 inches to the weather.

Find the number of shingles required to cover a roof 38 ft. long, and the rafters on each side 14 ft. Shingles exposed $4\frac{1}{2}$ inches.

$28 \times 38 = 1064$ (sq. ft.) $\times 8 = 8512$ shingles. Ans.

To find the length of rafters, giving the roof one-third pitch: take **three-fifths** of the width of the building. If the building is 30 feet wide, they must be 18 feet long, exclusive of projection.

The following very useful and practical calculations will be found exceedingly handy, as guides to the builder, in making up his figures when he is called upon to estimate for all portions of a job, many of which are not entirely in his own particular line:

LABOR.

To place joists, etc., on wall, \$4 per 1,000.

Put up jambs and case a door, \$1.50.

Hanging door and locking, 50c to 75c.

Fitting sash, 50c to 75c.

Casing window, stool and apron, \$1.00.

Hang outside blinds, 50c.

Hang inside blinds, 75c; if boxed, \$1.00.

Lay pine floor, 6-inch, 30c per square.

Lay pine floor, 4-inch, 40c per square.

Lay walnut floor, 3-inch, \$1 per square.

Roof and sheathing, 25c per square.

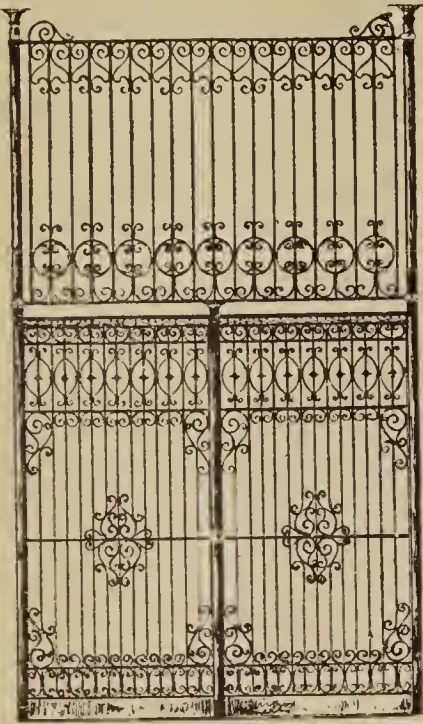
To lay shingles, per 1,000, 75c per square.

MASON WORK—BRICK.

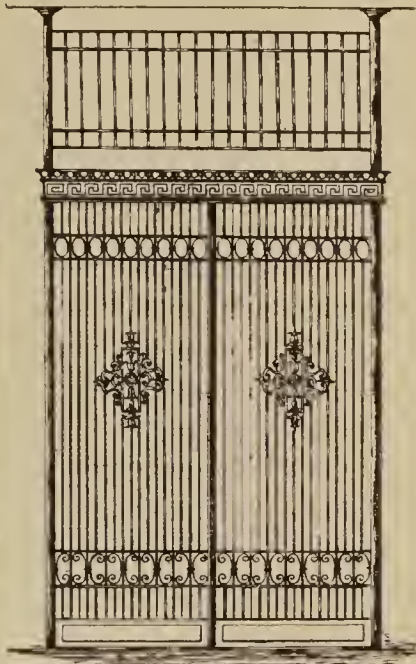
$1\frac{1}{8}$ barrels lime and $\frac{5}{8}$ yard sand will lay 1,000 brick.

One man with $1\frac{1}{4}$ tenders will lay 1,800 to 2,000 brick per day.

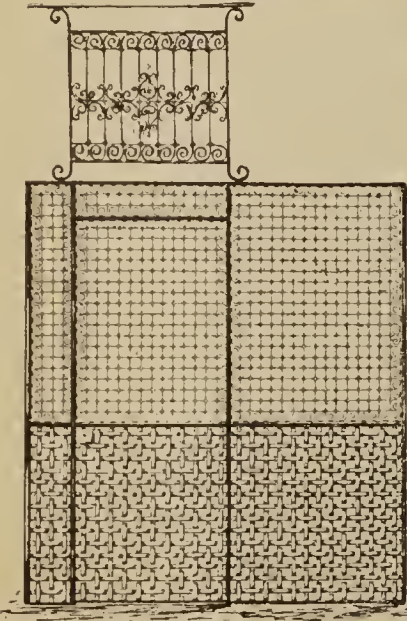
SPOKANE ORNAMENTAL IRON & WIRE WORKS.



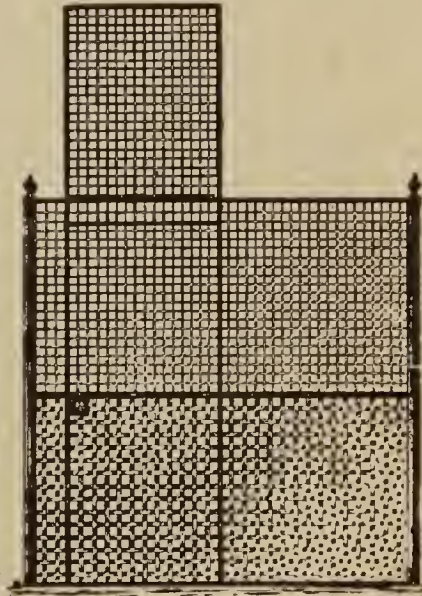
No. 710



No. 711



No. 712



No. 713

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

Elevator Enclosure No. 706. Standard one-inch channel frame, 1 $\frac{3}{4}$ -inch mesh No. 10 wire. In black finish, 60c per square foot. Doors with best anti-friction hangers and Moore locks, \$10.00 each.

Elevator Cab No. 752. Has neatly finished wood base and strong wire mesh top; medium size, 5 by 6 feet, \$160.00 in black finish.

Elevator Cab No. 753. Bessemer steel grille work in tubular frame, with ornamental cast iron corners; medium size, 5 by 6 feet, in black finish, \$200.00; in electro bronze, \$250.00.

Special designs and prices on application.

COST OF PAINTERS' WORK.

1 coat shellac, 50c per square.
1 coat lead and oil, 75c per square.
2 coats lead and oil, \$1.50 per square.
3 coats lead and oil, \$2.50 per square.
Sanding, 1 coat, 75c per square.
Grain oak, 2 coats, \$2.50 per square.
Grain walnut, 2 coats, \$3.00 per square.
To set glass, 10 per cent. of cost.
Calcimining, 60c to 75c per square.
1 coat varnish, 50c per square.

CEMENT.

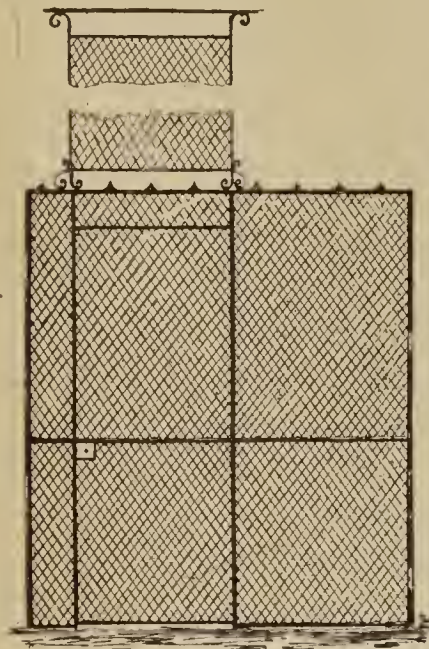
1 $\frac{1}{4}$ barrels cement and $\frac{3}{4}$ yard sand will lay 100 feet rubble stone. Same time as to mason and tender as rubble.

FLOOR, WALL AND ROOF MEASURE.

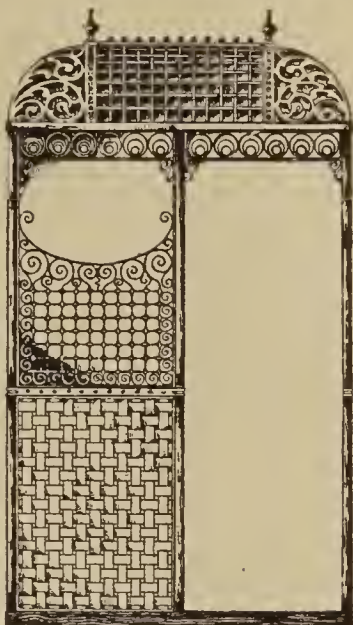
To find the number of square yards in a floor or wall: Rule—Multiply the length by the width or height (in feet) and divide the product by 9; the result will be square yards.

RUBBLE.

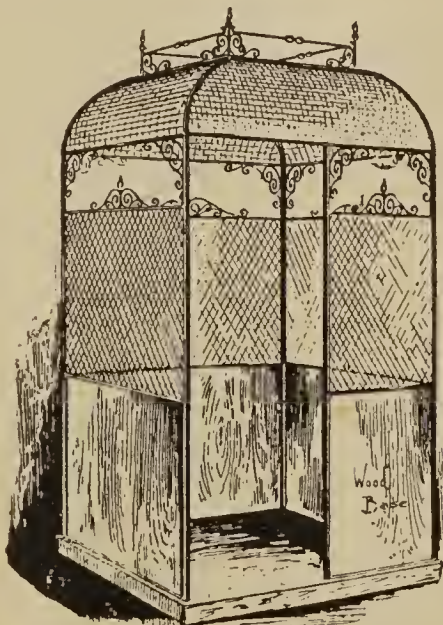
1 $\frac{1}{4}$ barrels lime and 1 yard of sand will lay 100 feet of stone. One man will lay 250 feet of stone per day with one tender.



No. 706



No. 753



No. 752

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

USEFUL INFORMATION FOR ARCHITECTS AND BUILDERS.

Number of Nails and Tacks Per Pound.

| NAILS. | | | No. | TACKS. | | | No. |
|----------------|---|------|--------------------------|-----------------|-----------------------|-----------------------|---------|
| Size. | | | per lb. | Length. | | | per lb. |
| 6 penny, fence | 2 | in | 80 nails | 1 | oz... | $\frac{1}{8}$ inch... | 16,000 |
| 8 | " | " | 2 $\frac{1}{2}$ in 50 " | 1 $\frac{1}{4}$ | " ... 3-16 | " ... | 10,666 |
| 10 | " | " | 3 in 34 " | 2 | " ... $\frac{1}{4}$ | " ... | 8,000 |
| 12 | " | " | 3 $\frac{1}{4}$ in 39 " | 2 $\frac{1}{2}$ | " ... 5-16 | " ... | 6,400 |
| 3 | " | fine | 1 $\frac{1}{3}$ in 760 " | 3 | " ... $\frac{3}{8}$ | " ... | 5,338 |
| 3 | " | .... | 1 $\frac{1}{4}$ in 480 " | 4 | " ... 7-16 | " ... | 4,000 |
| 4 | " | .... | 1 $\frac{1}{2}$ in 500 " | 6 | " ... 9-16 | " ... | 2,666 |
| 5 | " | .... | 1 $\frac{3}{4}$ in 200 " | 8 | " ... $\frac{5}{8}$ | " ... | 2,000 |
| 6 | " | .... | 2 in 160 " | 10 | " ... 11-16 | " ... | 1,600 |
| 7 | " | .... | 2 $\frac{1}{4}$ in 128 " | 12 | " ... $\frac{3}{4}$ | " ... | 1,332 |
| 8 | " | .... | 2 $\frac{1}{2}$ in 92 " | 14 | " ... 13-16 | " ... | 1,143 |
| 9 | " | .... | 2 $\frac{3}{4}$ in 72 " | 16 | " ... $\frac{7}{8}$ | " ... | 1,000 |
| 10 | " | .... | 3 in 60 " | 18 | " ... 15-16 | " ... | 888 |
| 12 | " | .... | 3 $\frac{1}{4}$ in 44 " | 20 | " ... 1 | " ... | 800 |
| 16 | " | .... | 3 $\frac{1}{2}$ in 32 " | 22 | " ... 1 1-16 | " ... | 727 |
| 20 | " | .... | 4 in 24 " | 24 | " ... 1 $\frac{1}{8}$ | " ... | 666 |
| 30 | " | .... | 4 $\frac{1}{4}$ in 18 " | | | | |
| 40 | " | .... | 5 in 14 " | | | | |
| 50 | " | .... | 5 $\frac{1}{2}$ in 12 " | | | | |

1,000 shingles, laid 4 inches to the weather, will cover 100 square feet of surface, and 5 lbs. of shingle nails will fasten them on.

One-fifth more siding and flooring is needed than the number of square feet of surface to be covered, because of the lap in the siding and matching.

1,000 laths will cover 70 yards of surface, and 11 lbs. of lath nails will nail them on; 8 bushels of good lime, 16 bushels of sand, and 1 bushel of hair, will make enough good mortar to plaster 100 square yards.

A cord of stone, 3 bushels of lime, and a cubic yard of sand, will lay 100 cubic feet of wall.

Five courses of brick will lay 1 foot in height on a chimney; 16 bricks in a course will make a flue 4 inches wide and 12 inches long, and 8 bricks in a course will make a flue 8 inches wide and 16 inches long.

ESTIMATES OF MATERIALS.

3 $\frac{1}{2}$ barrels of lime will do 100 square yards plastering, two coats.

2 barrels of lime will do 100 square yards plastering, one coat.

1 $\frac{1}{2}$ bushels of hair will do 100 square yards of plastering

1 $\frac{1}{4}$ yards of good sand will do 100 square yards of plastering.

$\frac{1}{3}$ barrel of plaster (stucco) will hard-finish 100 square yards plastering.

1 barrel of lime will lay 1,000 bricks. (It takes good lime to do it.)

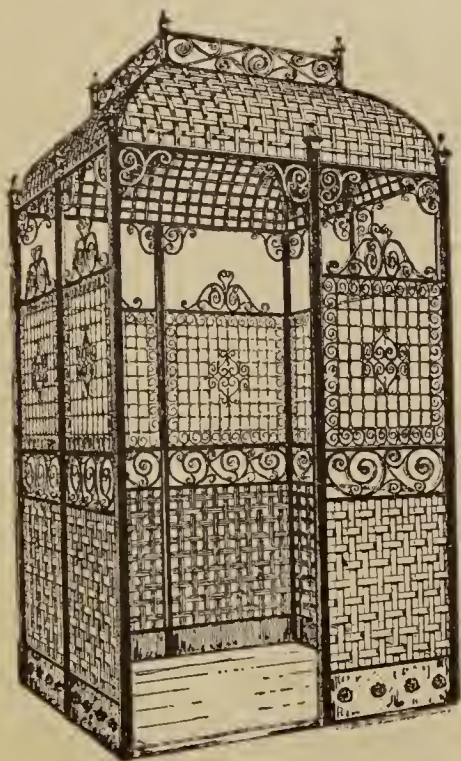
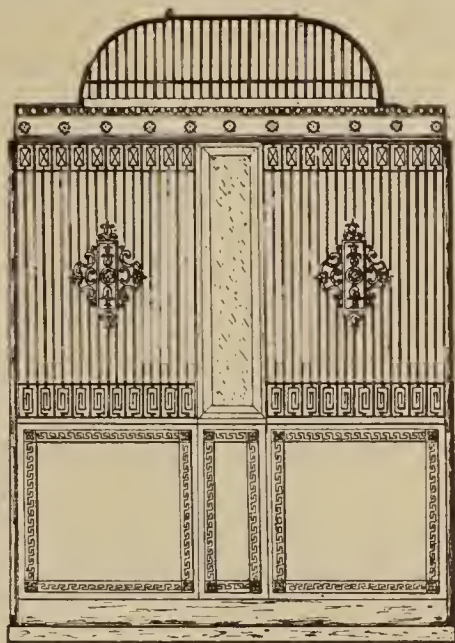
2 barrels of lime will lay 1 cord rubble stone.

$\frac{1}{2}$ barrel of lime will lay 1 perch rubble stone. (Estimating $\frac{1}{4}$ cord to perch.)

To every barrel of lime estimate about $\frac{5}{8}$ yards good sand for plastering and brick work.

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

Elevator Car No. 754. Has solid ornamental steel base, square bar grille work and bevel plate mirrors; medium size, 5 by 6 feet, \$300.00; in electro-plate, \$360.00.



Cab No. 755. Made of one-inch channel frame and Bessemer steel grille work; medium size, 5 by 6 feet, in black finish, \$240.00; in electro-bronze finish, \$280.00.

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

USEFUL RECIPES.

1. **To Remove Oil Paint from Glass:** Coat glass lightly with brown soft soap and let it remain one-half hour before wiping.
2. **To Preserve Fence Posts:** Mix powdered charcoal with boiled linseed oil to consistency of common paint and apply with brush.
3. **To Fireproof Wood:** Mix $\frac{1}{4}$ peck fine sand, $\frac{1}{2}$ peck finely screened wood ashes, $\frac{3}{4}$ peck slacked lime with burned linseed oil to form a soft dough; give one light and two heavy coats. This coating will harden like rock in water, and is good for water tanks.
4. **To Drill and Cut Glass:** Use a good hard tempered steel drill or saw, keeping cutting edge moist with a solution of turpentine and camphor. To round edges, use sharp round file.
5. **To Dry Newly Plastered Room:** Burn a fair sized fire of charcoal in the rooms for 48 hours, closing same well; after airing for 15 minutes the room can be occupied without injury to health.
6. **To Remove Odor of Fresh Paint:** Burn a few handful of juniper berries in an open fire and close the room for 24 hours, when the air will be pure and sweet.
7. **To Keep Glass from Frosting:** Wipe slightly with oil of glycerine.

CAPACITY OF CISTERN, IN GALLONS FOR EACH 10 INCHES IN DEPTH.

| Dia. in ft. | Gallons | Dia. in ft. | Gallons | Dia. in ft. | Gallons |
|-------------|---------|-------------|---------|-------------|---------|
| 2 | 19.5 | 6½ | 206.85 | 12 | 705. |
| 2½ | 30.5 | 7 | 239.88 | 13 | 827.4 |
| 3 | 44.6 | 7½ | 275.4 | 14 | 959.6 |
| 3½ | 59.97 | 8 | 313.33 | 15 | 1,101.6 |
| 4 | 78.33 | 8½ | 353.72 | 20 | 1,958.4 |
| 4½ | 99.14 | 9 | 396.56 | 25 | 3,059.9 |
| 5 | 122.4 | 9½ | 461.4 | 30 | 4,406.4 |
| 5½ | 148.1 | 10 | 489.6 | 35 | 5,990. |
| 6 | 176.25 | 11 | 592.4 | 40 | 7,831. |

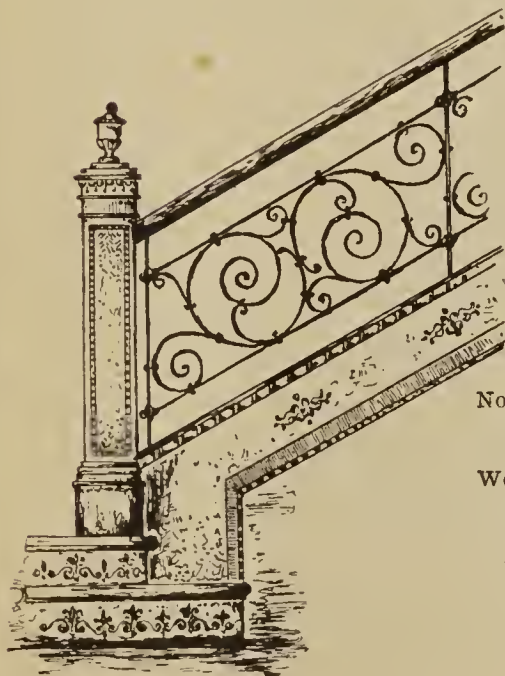
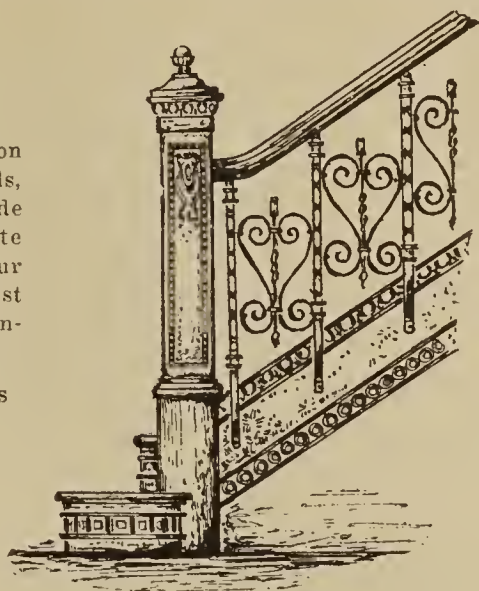
WEIGHT OF SKYLIGHT AND FLOOR GLASS PER SQUARE FOOT.

| | Thickness in Inches. | | | | | | | |
|------------|----------------------|------|---------------|---------------|---------------|---------------|---------------|-----|
| | $\frac{1}{8}$ | 3-16 | $\frac{1}{4}$ | $\frac{3}{8}$ | $\frac{1}{2}$ | $\frac{5}{8}$ | $\frac{3}{4}$ | 1 |
| Weight . . | 1.75 | 2.62 | 3.5 | 5.35 | 7. | 8.75 | 10.5 | 14. |

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

Stairs No. 1450. Cast iron string, risers and newels, wrought iron ballustrade with wood handrail, slate or marble treads. Our castings are of the highest grade, as also workmanship and finish.

Send plans and measures for estimates.



No. 1451. Same construction as No. 1450.

We solicit your plans and specifications for complete estimates on any iron work for buildings.

PAINTING.

For outside wood-work, paint made from white lead ground in linseed oil is most used. If the oil is raw, or unboiled, dryer is added; if boiled, no dryer is necessary. Not less than four coats should be applied—five are better.

Paint, ready mixed, put up in cans or kegs, may be procured from manufacturers or dealers. These paints have to be thinned by adding 1 pint of oil to about $2\frac{1}{2}$ lbs. of paint. When thinned, 1 lb. will cover about 2 square yards of first-coat, 3 yards of second, and 4 yards of each subsequent coat; or $1\frac{3}{8}$ lbs. to the square yard will be required for 4 coats, and $1\frac{5}{8}$ lbs. for 5 coats.

For inside work, either white lead or oxide of zinc is used, and for good work 4 coats are necessary.

For iron exposed to the weather, or the action of water, graphite paint of finely ground graphite mixed with pure linseed oil, is best.

Iron inclosed in cement should not be painted.

Plastered walls should stand a year before painting.

Painting is measured by the square yard, girding every part of the work that is covered by paint and allowing an addition to the actual surface for the difficulty of covering deep quirk of mouldings and for 'cutting in' as in sash and shelving, or where there is a change of color, on same work.

Washes.

For outside wood work. In a tight bushel, slack half a bushel of fresh lime by pouring over it boiling water sufficient to cover it 4 or 5 inches deep, stir until slacked; add 2 lbs. of sulphate of zinc dissolved in water, add water enough to bring all to the consistency of thick whitewash.

For inside work. Add 2 quarts of thin size to a pailful of wash just before using. The common practice of mixing salt with white-wash should not be permitted.

For brick or stone work. Slack $\frac{1}{2}$ bushel of lime, as before, in a barrel; then fill the barrel $\frac{2}{3}$ full of water and add a bushel of hydraulic cement; add 3 lbs. sulphate of zinc dissolved in water. These washes may be colored by adding powdered ochre, umber, etc.

AMOUNT OF PAINT REQUIRED FOR A GIVEN SURFACE.

It is impossible to give a rule that will apply in all cases, as the amount varies with the kind and thickness of the paint, the kind of wood or other material to which it is applied, the age of the surface, etc. The following is an approximate rule: Divide the number of square feet of surface by 200. The result will be the number of gallons of liquid paint required to give two coats; or, divide by 18 and the result will be the number of pounds of pure ground white lead required to give three coats.

HOW TO KILL GREASE SPOTS BEFORE PAINTING.

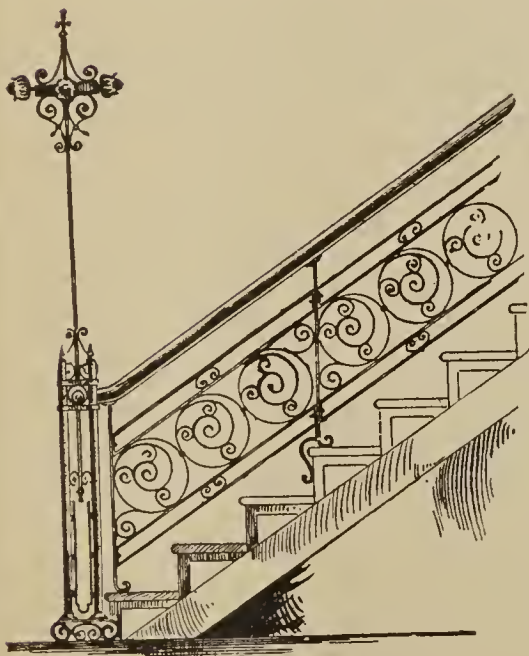
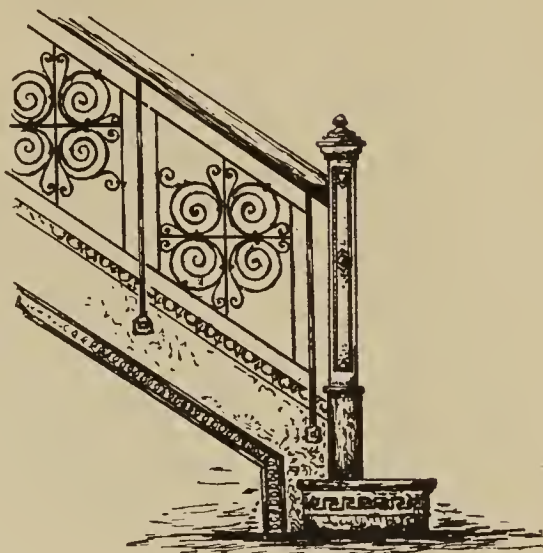
Wash over smoky or greasy parts with saltpetre, or very thin lime white-wash. If soap-suds are used, they must be washed off thoroughly, as they prevent the paint from drying hard.

CLAP-BOARDS.

One burdle laid $3\frac{1}{2}$ inches to the weather will cover 26 square feet.

No. 1452. A modest but neat stairway, less expensive than the previous, but of the same construction.

Prices on receipt of measures.



No. 1453. A wrought iron stairway throughout, very substantially built and most suitable for the outside of buildings, with or without electro-lyte.

Give run and rise for estimates.

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

MASON WORK—BRICK.

1 $\frac{1}{8}$ barrels lime and $\frac{5}{8}$ yard sand will lay 1,000 brick.

RUBBLE.

One man will lay 150 feet of stone per day with one tender.

CEMENT.

1 $\frac{1}{4}$ barrels cement and $\frac{3}{4}$ yard sand will lay 100 feet rubble

CONCRETE.

Good Fds., 1 cement, 3 sand, 9 gravel.

Mch. Fds., 1 cement, 3 sand, 7 gravel.

Ord. Fds., 1 cement, 4 sand, 12 gravel.

All material must be free of loam, clay, or dirt of any kind. Broken stone can be substituted for gravel. Sand should be clean and sharp.

LABOR.

Hanging door and locking, 50c to 75c.

Hang inside blinds, 75c; if boxed, \$1.00.

ESTIMATES OF MATERIALS.

3 $\frac{1}{2}$ barrels of lime will do 100 square yards plastering, two

1 $\frac{1}{4}$ yards of good sand will do 100 square yards of plastering.

$\frac{1}{2}$ barrel of lime will lay 1 perch rubble stone. (Estimating $\frac{1}{4}$

BLUE PRINT SOLUTION.

1 pint Citrate of Iron Ammonia.

2 pints Red Prussiate of Potash.

1 pint Gum Arabic.

3 pints Water.

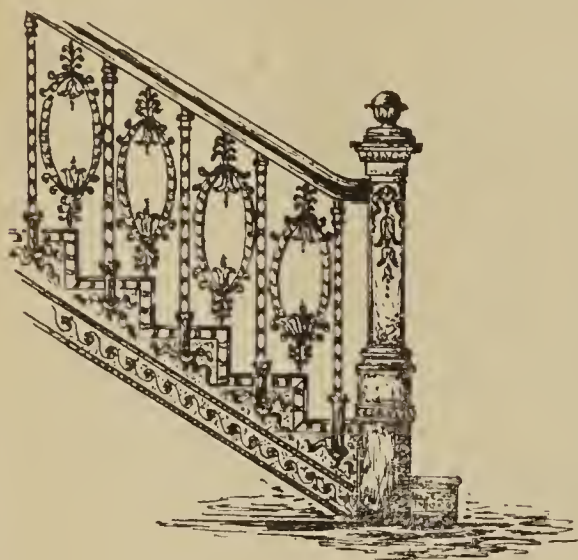
1 $\frac{1}{4}$ oz. Red Prussiate of Potash in 11 ozs. water.

1 $\frac{7}{8}$ oz. Citrate of Ammonia in 5 ozs. water.

Mix together and keep in dark place.

Corrections can be made with a pen dipped in a solution of caustic soda. Also by bi-carbonate of soda. Also by a solution of lime.

Cement 1 bushel and sand 2 bushels will cover 3 $\frac{1}{2}$ square yards 1 inch thick, 4 $\frac{1}{2}$ square yards $\frac{3}{4}$ inch thick, and 6 $\frac{3}{4}$ square yards $\frac{1}{2}$ inch thick; 1 bushel cement and 1 of sand will cover 2 $\frac{1}{4}$ square yards 1 inch thick, 3 square yards $\frac{3}{4}$ inch thick, and 4 $\frac{1}{2}$ square yards $\frac{1}{2}$ inch thick.

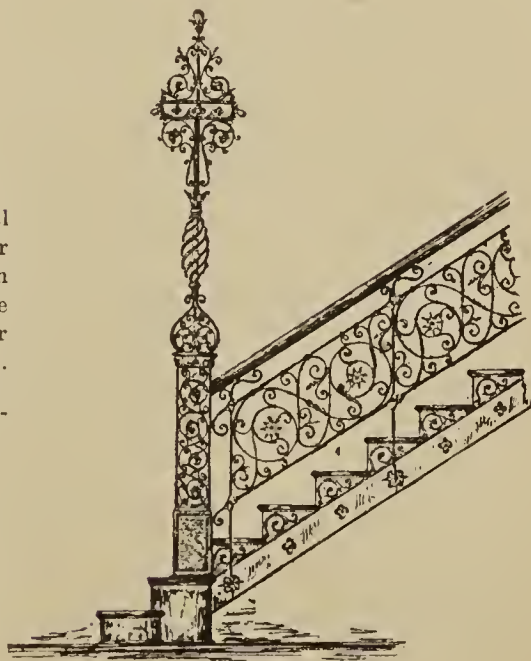


No. 1454. Highly ornamental cast iron stair with slate or marble treads, wood hand rail and cast iron balustrade.

All ornaments are free hand artistic modeled and submitted to architect's approval if desired.

No. 1455. Ornamental wrought iron stair throughout, with slate or marble treads, with or without electroliere.

For prices send measures and plan.



SPOKANE ORNAMENTAL IRON & WIRE WORKS.

No. 1401. Shows hand-forged ornamental iron railing with leaf work. We employ skilled artisans for this line of work and solicit special designs for execution. Price per lineal foot in black finish, \$12.00.

No. 1402. Wrought iron scroll railing with 1 $\frac{3}{4}$ inch diameter pipe railing, for stone and wood steps; 32 inches high, \$4.00 per lineal foot.

No. 1456. Heavy cast iron spiral stair, solid treads and risers; made any radius to order; 24 inch radius, \$12.00 per foot rise.

No. 1457. Light spiral stairs, 24 to 30 inch radius, \$8.00 and \$9.00 per foot rise, complete for erection.

COMPOSITION OF SOLDERS.

Fine Solder is an alloy of two parts of block tin and one part of lead. Glazing Solder is equal parts of block tin and lead. Plumbing solder, one part block tin, two parts lead.

YARDS OF WIRE, PER BUNDLE.

Wires all weigh 63 lbs. to the bundle.

| Wire Gauge. | Yards in Bundle. | Wire Gauge. | Yards in Bundle. |
|--------------|------------------|--------------|------------------|
| No. 0 | 71 | No. 11 | 529 |
| No. 1 | 91 | No. 12 | 700 |
| No. 2 | 105 | No. 13 | 893 |
| No. 3 | 121 | No. 14 | 1142 |
| No. 4 | 143 | No. 15 | 1468 |
| No. 5 | 170 | No. 16 | 1954 |
| No. 6 | 203 | No. 17 | 2540 |
| No. 7 | 239 | No. 18 | 3150 |
| No. 8 | 286 | No. 19 | 4085 |
| No. 9 | 342 | No. 20 | 4912 |
| No. 10 | 420 | | |

STRENGTH OF ICE OF VARIOUS THICKNESSES.

Ice two inches thick will bear men to walk on.

Ice four inches thick will bear horses and riders.

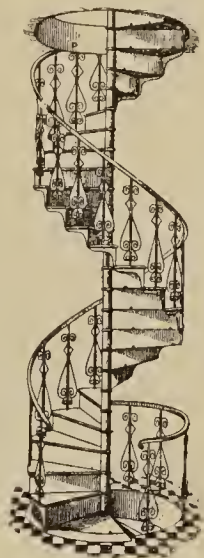
Ice six inches thick will bear teams with moderate loads.

Ice eight inches thick will bear teams with very heavy loads.

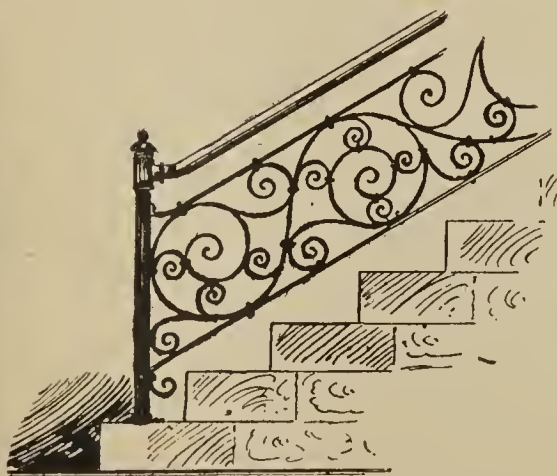
Ice ten inches thick will sustain a pressure of 1,000 pounds per square foot.



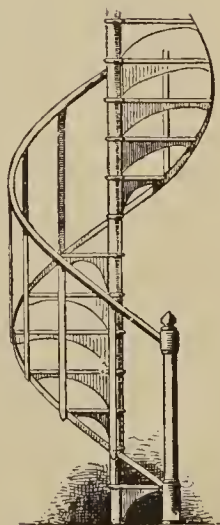
No. 1401



No. 1456



No. 1402



No. 1457

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

No. 1458. Outside area stairs, substantial wrought iron construction and wrought iron hand rail, with wood or iron treads and platform; can also be made with solid risers. Send run, width and rise of stairs for estimate.

No. 1459. A similar stair as above, with cast iron treads and more substantial railing, as well as newel post.

No. 1460. Plain bracket.

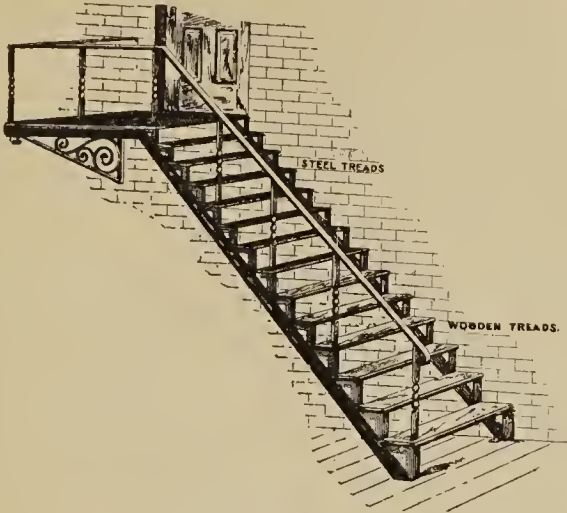
No. 1461. Ornamental bracket for support of stairs.

WEIGHTS OF CORDWOOD.

| | Lbs. | Carbon. |
|----------------------------------|-------|---------|
| One cord of Hickory..... | 4,468 | 100 |
| One cord of Hard Maple..... | 2,864 | 58 |
| One cord of Beech..... | 3,234 | 64 |
| One cord of Ash..... | 3,449 | 79 |
| One cord of Birch..... | 2,368 | 49 |
| One cord of Pitch Pine..... | 1,903 | 43 |
| One cord of Canada Pine..... | 1,870 | 42 |
| One cord of Yellow Oak..... | 2,920 | 61 |
| One cord of White Oak..... | 1,870 | 81 |
| One cord of Lombardy Poplar..... | 1,775 | 41 |
| One cord of Red Oak..... | 3,255 | 70 |

WEIGHT OF LEAD PIPE—DIFFERENT SIZES.

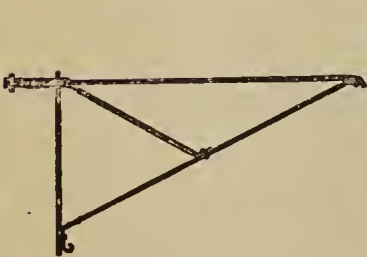
| Caliber. | AAA Weight per foot. | | AA Weight per foot. | | A Weight per foot. | | B Weight per foot. | | C Weight per foot. | | D Weight per foot. | | D Light Weight per foot. | | E Weight per foot. | | E Light Weight per foot. | |
|----------------|----------------------------|----|---------------------------|----|--------------------------|----|--------------------------|----|--------------------------|----|--------------------------|----|--------------------------------|-------|--------------------------|-------|--------------------------------|----|
| In. | lb | oz | lb | oz | lb | oz | lb | oz | lb | oz | lb | oz | lb | oz | lb | oz | lb | oz |
| $\frac{3}{8}$ | 1 | 8 | 1 | 5 | 1 | 2 | 1 | 0 | 0 | 13 | 0 | 10 | ..... | 0 | 8 | ..... | ..... |  |
| $\frac{1}{2}$ | 3 | 0 | 2 | 0 | 1 | 12 | 1 | 4 | 1 | 0 | 0 | 13 | ..... | 0 | 11 | 0 | 9 | |
| $\frac{5}{8}$ | 3 | 8 | 2 | 12 | 2 | 8 | 2 | 0 | 1 | 12 | 1 | 8 | 1 | 4 | 1 | 0 | 12 | |
| $\frac{3}{4}$ | 4 | 8 | 3 | 8 | 3 | 0 | 2 | 4 | 2 | 0 | 1 | 12 | 1 | 8 | 1 | 4 | 0 | |
| 1 | 6 | 0 | 4 | 12 | 4 | 0 | 3 | 4 | 2 | 8 | 2 | 0 | ..... | 1 | 8 | ..... | ..... |  |
| $1\frac{1}{4}$ | 6 | 12 | 5 | 12 | 4 | 12 | 3 | 12 | 3 | 0 | 2 | 8 | ..... | 2 | 0 | ..... | ..... |  |
| $1\frac{1}{2}$ | 9 | 0 | 8 | 0 | 6 | 4 | 5 | 0 | 4 | 4 | 3 | 8 | ..... | 3 | 4 | ..... | ..... |  |
| 2 | 10 | 12 | 9 | 0 | 7 | 0 | 6 | 0 | 5 | 4 | 4 | 0 | ..... | ..... | ..... | ..... | ..... |  |



No. 1458



No. 1459



No. 1460



No. 1461

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

We make fire escapes of any description, standpipes and railings and especially solicit country trade for this work. All of the materials are fully itemized and detailed so anyone can easily erect same with the assistance of our shop details sent with the work.

For estimates, show elevations and give width of stairs and platforms.

No. 1602 shows the usual stair.

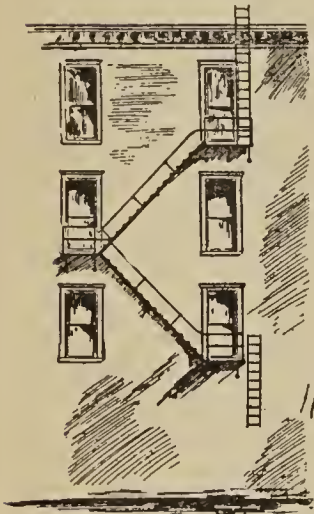
No. 1603 shows the ladder fire escape.

No. 1650. An inexpensive carriage porch, which can be arranged for tin or glass roof and has transparent glass signs to be illuminated at night. The best investment we ever made is the verdict of those whom we furnished.

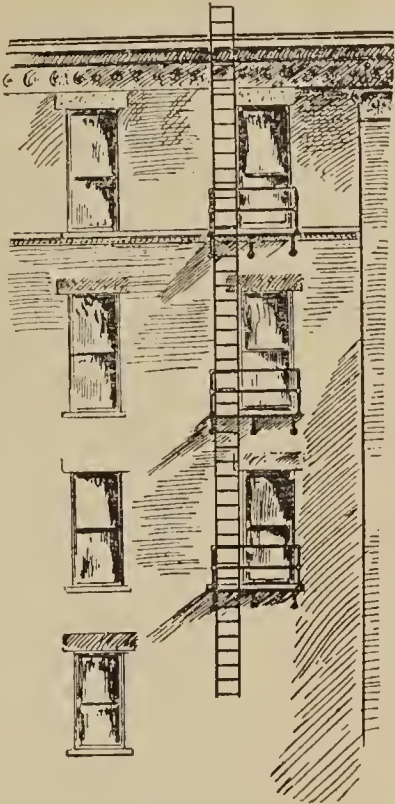
For prices send dimensions.

SIZE AND STRENGTH OF CAST IRON COLUMNS, IRON 1 INCH THICK.

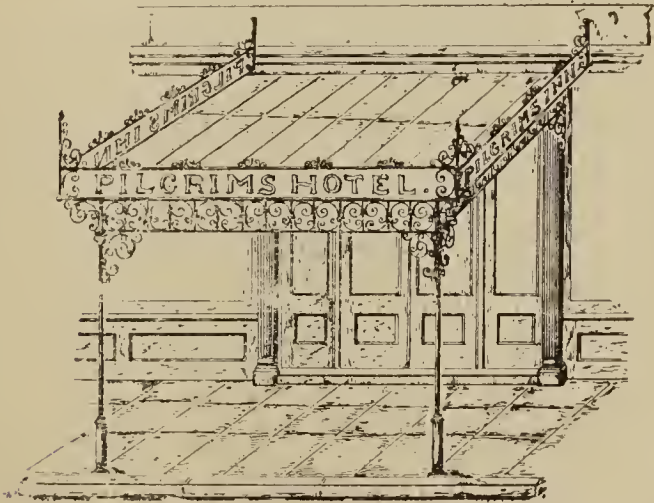
| Diameter in inches. | HEIGHT IN FEET | | | | | | | | | | |
|------------------------|----------------|------|------|------|------|------|------|------|------|------|------|
| | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 |
| | LOAD IN CWT. | | | | | | | | | | |
| 2..... | 72 | 60 | 49 | 40 | 32 | 26 | 22 | 18 | 15 | 13 | 11 |
| 2½..... | 119 | 105 | 91 | 77 | 65 | 55 | 47 | 40 | 34 | 29 | 25 |
| 3..... | 178 | 143 | 145 | 128 | 111 | 97 | 84 | 73 | 64 | 56 | 49 |
| 3½..... | 247 | 232 | 214 | 191 | 172 | 156 | 135 | 119 | 106 | 94 | 83 |
| 4..... | 326 | 318 | 288 | 266 | 242 | 220 | 198 | 178 | 160 | 144 | 130 |
| 4½..... | 418 | 400 | 379 | 354 | 327 | 301 | 275 | 251 | 229 | 208 | 189 |
| 5..... | 522 | 501 | 479 | 452 | 427 | 394 | 365 | 337 | 310 | 285 | 262 |
| 6..... | 607 | 592 | 573 | 550 | 525 | 497 | 469 | 440 | 413 | 386 | 360 |
| 7..... | 1032 | 1013 | 989 | 959 | 924 | 887 | 848 | 808 | 765 | 725 | 686 |
| 8..... | 1333 | 1315 | 1289 | 1259 | 1224 | 1185 | 1142 | 1097 | 1052 | 1005 | 959 |
| 9..... | 1716 | 1697 | 1672 | 1640 | 1603 | 1561 | 1515 | 1461 | 1461 | 1364 | 1311 |
| 10..... | 2119 | 2100 | 2077 | 2045 | 2007 | 1964 | 1916 | 1865 | 1811 | 1755 | 1697 |
| 11..... | 2570 | 2550 | 2520 | 2490 | 2450 | 2410 | 2358 | 2305 | 2248 | 2189 | 2127 |
| 12..... | 3050 | 3040 | 3020 | 2970 | 2930 | 2900 | 2830 | 2780 | 2730 | 2670 | 2600 |



No. 1602



No. 1603



No. 1650

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

QUANTITY OF BRICKS REQUIRED TO CONSTRUCT A BUILDING

| Superficial Feet of Wall. | Number of Bricks in Thickness of | | | | | |
|---------------------------------|----------------------------------|--------|---------|---------|---------|---------|
| | 4 inch | 8 inch | 12 inch | 16 inch | 20 inch | 24 inch |
| 1..... | 7 | 15 | 22 | 29 | 37 | 45 |
| 2..... | 15 | 30 | 45 | 60 | 75 | 90 |
| 3..... | 23 | 45 | 68 | 90 | 113 | 135 |
| 4..... | 30 | 60 | 90 | 120 | 150 | 180 |
| 5..... | 38 | 75 | 113 | 150 | 188 | 225 |
| 6..... | 45 | 90 | 135 | 180 | 225 | 270 |
| 7..... | 53 | 105 | 158 | 210 | 263 | 315 |
| 8..... | 60 | 120 | 180 | 240 | 300 | 360 |
| 9..... | 68 | 135 | 203 | 270 | 338 | 405 |
| 10..... | 75 | 150 | 225 | 300 | 375 | 450 |
| 20..... | 150 | 300 | 450 | 600 | 750 | 900 |
| 30..... | 225 | 450 | 675 | 900 | 1,125 | 1,350 |
| 40..... | 300 | 600 | 900 | 1,200 | 1,500 | 1,800 |
| 50..... | 375 | 750 | 1,125 | 1,500 | 1,875 | 2,250 |
| 60..... | 450 | 900 | 1,350 | 1,800 | 2,250 | 2,700 |
| 70..... | 525 | 1,050 | 1,575 | 2,100 | 2,625 | 3,150 |
| 80..... | 600 | 1,200 | 1,800 | 2,400 | 3,000 | 3,600 |
| 90..... | 675 | 1,350 | 2,025 | 2,700 | 3,375 | 4,050 |
| 100..... | 750 | 1,500 | 2,250 | 3,000 | 3,750 | 4,500 |
| 200..... | 1,500 | 3,000 | 4,500 | 6,000 | 7,500 | 9,000 |
| 300..... | 2,250 | 4,500 | 6,750 | 9,000 | 11,250 | 13,500 |
| 400..... | 3,000 | 6,000 | 9,000 | 12,000 | 15,000 | 18,000 |

AMOUNT OF BARBED WIRE REQUIRED FOR FENCES.

Estimated number of pounds of barbed wire required to fence space or distances mentioned, with one, two or three lines of wire, based upon each pound of wire measuring one rod (16½ feet.)

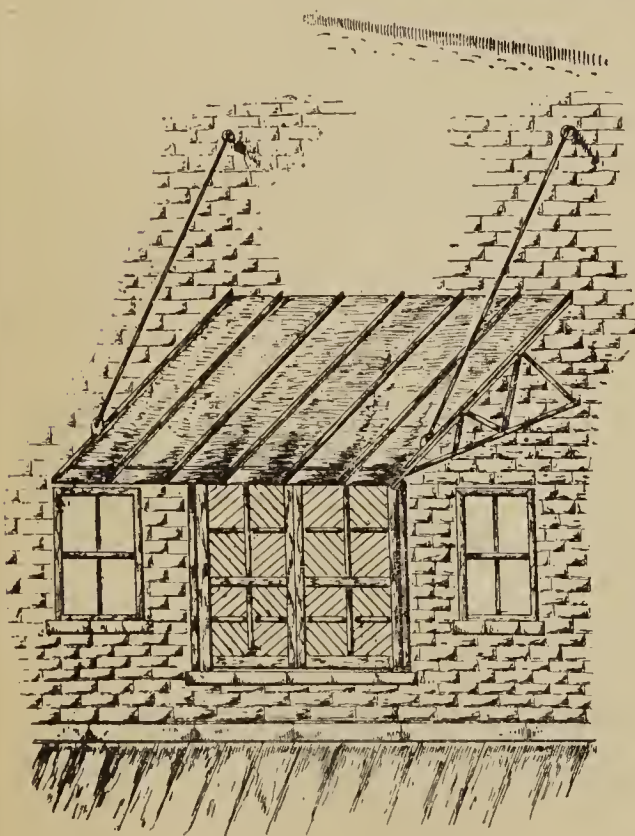
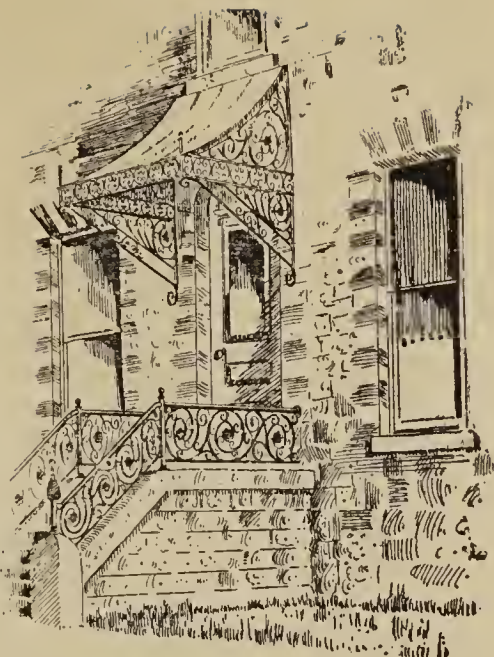
| | 1 Line. | 2 Lines. | 3 Lines. |
|---------------------------|-------------------------------------|--------------------------------------|--------------|
| 1 square acre..... | 50 ² / ₃ lbs. | 101 ¹ / ₃ lbs. | 152 lbs. |
| 1 side of a square acre.. | 12 ² / ₃ lbs. | 25 ¹ / ₃ lbs. | 38 lbs. |
| 1 square half-acre..... | 36 lbs. | 72 lbs. | 108 lbs. |
| 1 square mile..... | 1280 lbs. | 2560 lbs. | 3840 lbs. |
| 1 side of a square mile.. | 320 lbs. | 640 lbs. | 960 lbs. |
| 1 rod in length..... | 1 lbs. | 2 lbs. | 3 lbs. |
| 100 rods in length..... | 100 lbs. | 200 lbs. | 300 lbs. |
| 100 feet in length..... | 6 1-16 lbs. | 12 ¹ / ₂ lbs. | 18 3-16 lbs. |

How to Test Quality of Steel.—Good tool steel, with a white heat, will fall to pieces; with bright red heat will crumble under the hammer; with middling heat may be drawn to a needle-point.

To test hardening qualities draw under a low heat to a gradually tapered square point and plunge into cold water; if broken point will scratch glass, the quality is good.

To test tenacity, a hardened piece will be driven into cast-iron by a hardened hammer—if poor, will be crumbled. Excellence will be in proportion to tenacity in hard state. Soft steel of good quality gives a curved line fracture and uniform gray texture. Tool steel should be dull silver color, uniform, entirely free from sparkling qualities.

No. 1651. An idea to protect a front entrance and an improvement of its appearance. Price of canopy, 5 by 6 feet, \$160.00. Straight stair rail on stone or wood steps, 18 inches high, \$3.00 per lineal foot, 30 inches high, \$4 00 per lineal foot.



No. 1652.
Canopy for warehouse entrance, on heavy steel frame construction, with corrugated iron, tin or glass roof.

For prices send dimensions.

No. 1653. Canopy suitable for store entrance, with illuminating signs, of white milk glass. A useful article and good advertisement. We submit special designs to suit style and size, free of charge.

No. 1700. Store front, finished with our ornamental iron sash bars, detail cuts of which are shown on pages 29 and 31.

Send plans for estimates.

MOULDERS AND PATTERN MAKERS' TABLE.

Cast Iron Being 1,

| | |
|---------------------|------|
| Bar Iron equal..... | 1.07 |
| Steel equal | 1.08 |
| Brass equal | 1.16 |
| Copper equal | 1.21 |
| Lead equal | 1.56 |

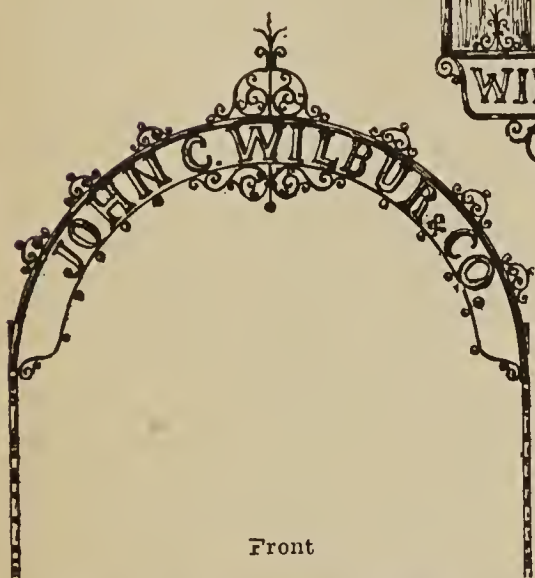
Bar Iron Being 1,

| | |
|----------------------|------|
| Cast Iron equal..... | .95 |
| Steel equal | 1.03 |
| Copper equal | 1.16 |
| Brass equal | 1.09 |
| Lead equal | 1.48 |

White Pine Being 1,

| | |
|----------------------|------|
| Cast Iron equal..... | 13. |
| Brass equal | 12.7 |
| Copper equal | 13.4 |
| Lead equal | 18.1 |
| Zinc equal | 11.5 |

Weight of a Cubic Inch of Various Metals in Pounds.—Hammered Gold .701 lbs., Cast do. (pure) .698, 20 Carats Fine do. .567, Hammered Silver .382, Pure do. .378, Cast Steel .287, Cast Iron .263, Sheet Iron .279, Rolled Platinum .797, Wire do. .762, Hammered do. .735, Sheet Copper .323, Sheet Brass .304, Lead .410, Cast Tin .264, Cast Zinc .245.



Front



Side

No. 1653



No. 1700

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

WEIGHT OF FLAT STEEL PER FOOT.

| | 1 | 1 $\frac{1}{8}$ | 1 $\frac{1}{4}$ | 1 $\frac{3}{8}$ | 1 $\frac{1}{2}$ | 1 $\frac{3}{4}$ | 2 |
|---------------------|------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| $\frac{1}{4}$ | .852 | .958 | 1.06 | 1.17 | 1.27 | 1.49 | 1.70 |
| $\frac{3}{8}$ | 1.27 | 1.43 | 1.59 | 1.75 | 1.91 | 2.23 | 2.55 |
| $\frac{1}{2}$ | 1.70 | 1.91 | 2.13 | 2.34 | 2.55 | 2.98 | 3.40 |
| $\frac{3}{4}$ | 2.13 | 2.39 | 2.66 | 2.92 | 3.19 | 3.72 | 4.26 |
| | | 2 $\frac{1}{4}$ | 2 $\frac{1}{2}$ | 2 $\frac{3}{4}$ | 3 | 3 $\frac{1}{4}$ | 3 $\frac{1}{2}$ |
| $\frac{1}{4}$ | | 1.91 | 2.13 | 2.34 | 2.55 | 2.77 | 2.97 |
| $\frac{3}{8}$ | | 2.87 | 3.20 | 3.51 | 3.83 | 4.15 | 4.47 |
| $\frac{1}{2}$ | | 3.83 | 4.26 | 4.68 | 5.11 | 5.53 | 5.98 |
| $\frac{3}{4}$ | | 4.79 | 5.32 | 5.85 | 6.39 | 6.92 | 7.45 |

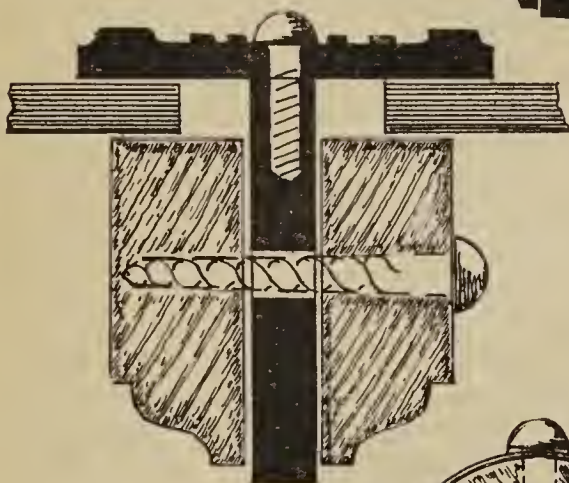
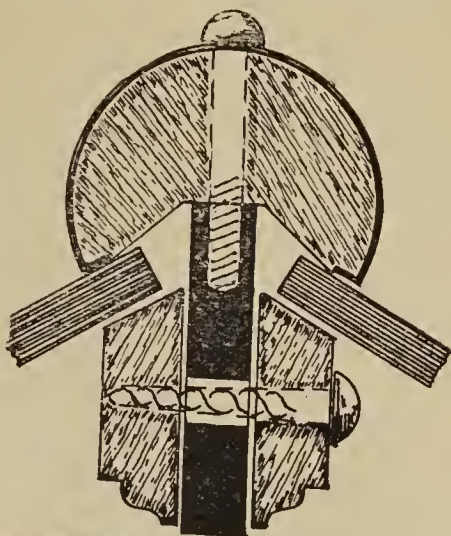
RELATIVE STRENGTH OF BODIES TO RESIST TORSION.

Lead Being 1.

| | |
|----------------------|------|
| Tin | 1.4 |
| Copper | 4.3 |
| Yellow Brass..... | 4.6 |
| Gun Metal | 5.0 |
| Cast Iron..... | 9.0 |
| Swedish Iron..... | 9.5 |
| English Iron..... | 10.1 |
| Blistered Steel..... | 16.6 |
| Shear Steel..... | 17.0 |

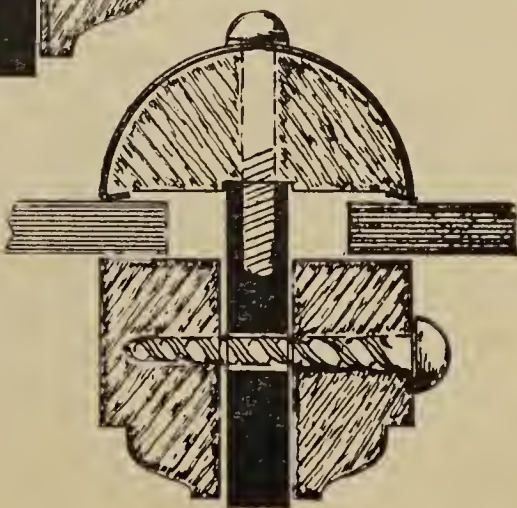
Weight of Various Materials in Lbs. (Avoirdupois) per Cubic Foot.—Pure Gold 1,203.6, Standard Gold 1,102.9, Hammered Gold 1,210.11, Pure Silver 654.6, Hammered Silver 656.9, Standard Silver 658.4, Cast Brass 524.8, Brass Wire 534, Bismuth (cast) 613.9, Antimony 418.9, Bronze 513.4, Cobalt (cast) 488.2, Copper (cast) 459.3, Copper (sheet) 557.2, Copper (wire) 554.9, Wrought Iron 486.75, Iron Plates 481.5, Cast Iron 450.4, Gun Metal 543.75, Cast Lead 709.5, Rolled Lead 711.75, Red Lead 558.75, Tin 455.7, Platinum (pure) 1,218, Hammered Platinum 1,271, Mercury 60 deg., Fluid 848, Mercury (solid) 977, Nickel (cast) 487.9, Steel (plates) 480.75, Steel (soft) 489.6, Type Metal 653.1, Zinc (cast) 439, Granite 165.75, Millstone 155.3, Marble (mean, of 19 kinds) 180, Grindstones 133.9, Firebrick 137.5, Tile 114.44, Brick (mean) 102, Clay 102, Limestone (mean, of 7 sorts) 184.1, Loose Earth or Sand 95, Coarse Sand 112.5, Ordinary Soil 124, Mud 102, Clay and Stones 160, Slate 167 to 181.25, Plaster Paris 73.5, Plumbago 131.35, Anthracite Coal from 89.75 to 102.5, Cannel Coal from 77.33 to 82.33, Charcoal from Hard Wood 18.5, ditto from Soft Wood 18, Port Wine 62.31, Fresh Water 62.5, Sea Water 64.3, Dead Sea Water 77.5, Vinegar 67.5, Alum 107.10, Asbestos (Starry) 191.1, Ice at 32 degs., 57.5, Sulphur 127.1, Peat 375 to 83.1, Marl (mean) 109.33, Hydraulic Lime 171.60, Quartz 163.25, Rock Crystal 170.94, Salt (common) 133.12, Lard 59.20, Whale Oil 57-70, Olive Oil 57.19.

No. 1701. Reinforced German silver corner sash bar, 2-inch face on hardwood core, with steel back fitted up complete for erection. Price, \$1.60 per lineal foot.



No. 1702. Section of ornamental flat steel sash bar, design No. 1706, on next page; fitted up complete for erection. \$1.00 per lineal foot.

No. 1703. Section of German silver face sash bar, same make as No. 1701. \$1.40 per lineal foot.



All glass can be set from the outside and the glass will not frost on incased show windows.

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

Table showing the requisite sizes of girders and joists for warehouses, the span and distance apart being given:

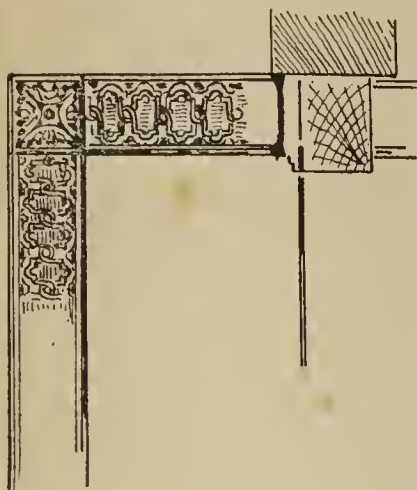
| Distance apart. | Span of Girders. | | | | Joists | Remarks |
|-----------------|------------------|--------|---------|---------|-----------|--|
| | 6 Feet | 8 Feet | 10 Feet | 12 Feet | | |
| Feet | Inches | Inches | Inches | Inches | Inches | |
| 10 | 8x12 | 12x13 | 12x16 | 14x18 | 2 1/2 x10 | Girders to have a bearing at each end and joists six inches. |
| 12 | 9x12 | 12x14 | 12x18 | 16x18 | 3 x10 | |
| 14 | 10x12 | 12x15 | 14x18 | ..... | 3 x12 | |

Table showing quantity of lumber in every four lineal feet of partition, studs being placed 16 centers, waste included:

| Height of partition. Feet. | Quantity of Studs 2x4. Feet. | If 2x6. Feet. |
|-------------------------------|---------------------------------|------------------|
| 8 | 20 | 30 |
| 9 | 23 | 34 |
| 10 | 26 | 38 |
| 11 | 29 | 42 |
| 12 | 32 | 46 |
| 13 | 35 | 51 |
| 14 | 38 | 55 |
| 15 | 41 | 59 |
| 16 | 44 | 64 |

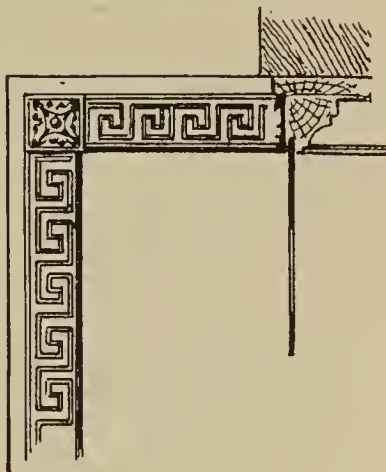
Table as before, adapted for churches, public halls, etc.

| Distance apart. | Span of Girders. | | | | Joists. | Remarks. |
|-----------------|------------------|--------|--------|--------|-----------|--|
| | 6 Ft. | 8 Ft. | 10 Ft. | 12 Ft. | | |
| Feet | Inches | Inches | Inches | Inches | Inches | |
| 12 | 6x10 | 8x12 | 12x14 | 12x16 | 2 x 8 | Bearings of girders and joists as above. |
| 13 | 6x11 | 9x12 | 11x15 | 12x17 | 2 x 9 | |
| 14 | 6x12 | 10x12 | 12x15 | 11x18 | 2 x 9 | |
| 15 | 7x12 | 11x12 | 11x16 | 12x16 | 2 x10 | |
| 16 | 8x12 | 12x12 | 12x16 | 13x18 | 2 x10 | |
| 17 | 8x12 | 9x14 | 12x17 | 14x18 | 2 x12 | |
| 18 | 9x12 | 10x14 | 11x18 | ..... | 2 x12 | |
| 19 | 9x12 | 11x14 | 12x18 | ..... | 2 1/2 x12 | |
| 20 | 10x12 | 12x14 | 13x18 | | 2 1/2 x12 | Both tables are calculated for yellow pine |
| 21 | 10x12 | 11x15 | 14x18 | ..... | 2 1/2 x12 | |
| 22 | 11x12 | 12x15 | ..... | ..... | 3 x12 | |
| 23 | 11x12 | 11x16 | ..... | ..... | 3 x12 | |
| 24 | 10x12 | 12x16 | ..... | ..... | 3 x13 | |
| 25 | 10x13 | 12x17 | ..... | ..... | 3 x13 | |
| 26 | 10x14 | 12x18 | ..... | ..... | 3 x14 | |
| 27 | 10x14 | 12x18 | ..... | ..... | 3 x14 | |



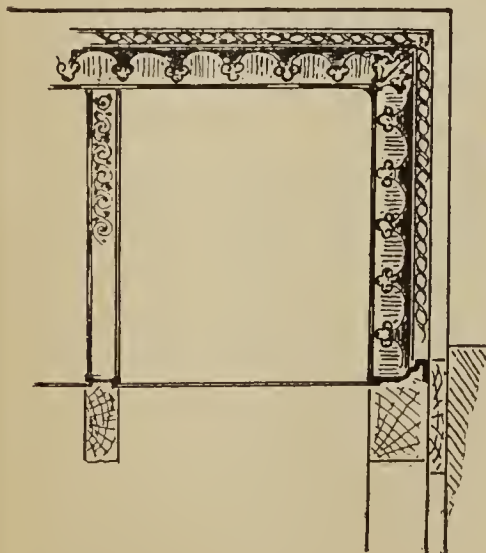
No. 1704. Rolled steel facing, $2\frac{1}{2}$ inches wide, 80c per lineal foot; $3\frac{1}{2}$ inches wide, \$1.00 per lineal foot, all fitted complete for erection.

No. 1705. $1\frac{1}{2}$ inches wide, 40c per lineal foot; 2 inches wide, 60c per lineal foot; $2\frac{1}{2}$ inches wide, 80c per lineal foot, finished in rustless black and fitted to plans.



No. 1706. Extra heavy high relief ornamental steel molding; 3 inches wide, \$1.00 per lineal foot.

These moldings are not made of a light stamped sheet metal, but of $\frac{1}{8}$ inch to $\frac{1}{4}$ inch solid steel.



SPOKANE ORNAMENTAL IRON & WIRE WORKS.

The time is coming, and has already come, when the practical builder is suspending all lighter wood work on the exterior of buildings and especially railings, where exposed to all kinds of weather. A few designs of which are shown on the following pages, all made in a neat and substantial manner.

No. 402. 32 inches high, \$2.40 per lineal foot.

No. 403. 32 inches high, \$2.40 per lineal foot.

No. 405. 32 inches high, \$1.20 per lineal foot.

No. 406. 32 inches high, \$1.60 per lineal foot.

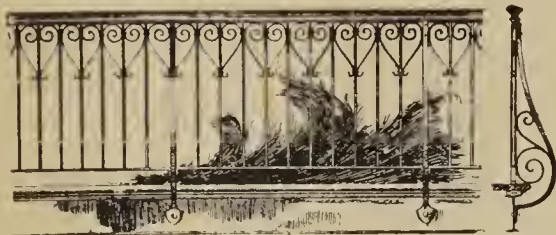
For interior finish the usual iron hand rail can be substituted for 2-inch polished brass hand rail at an advance of 80 cents per lineal foot. --

TABLE OF TRANSMISSION OF POWER BY WIRE ROPES.

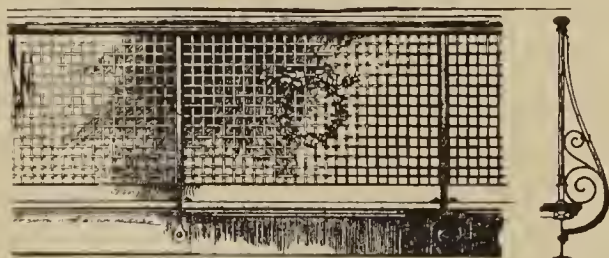
Showing necessary size and speed of wheels and rope to obtain any desired amount of power. (Roebbling.)

| Diam. of Wh'l in ft | No. of Revolutions. | Diam. of Rope. | Horse Power. | Diam. of Wh'l in ft | No. of Revolutions. | Diam. of Rope. | Horse Power. |
|---------------------|---------------------|----------------|--------------|---------------------|---------------------|----------------|--------------|
| 4 | 80 | $\frac{3}{8}$ | 3.3 | 10 | 80 | 11-16 | 58.4 |
| | 100 | $\frac{3}{8}$ | 4.1 | | 100 | 11-16 | 73. |
| | 120 | $\frac{3}{8}$ | 5. | | 120 | 11-16 | 87.6 |
| | 140 | $\frac{3}{8}$ | 5.8 | | 140 | 11-16 | 102.2 |
| 5 | 80 | 7-16 | 6.9 | 11 | 80 | 11-16 | 75.5 |
| | 100 | 7-16 | 8.6 | | 100 | 11-16 | 94.4 |
| | 120 | 7-16 | 10.3 | | 120 | 11-16 | 113.3 |
| | 140 | 7-16 | 12.1 | | 140 | 11-16 | 132.1 |
| 6 | 80 | $\frac{1}{2}$ | 10.7 | 12 | 80 | $\frac{3}{4}$ | 99.3 |
| | 100 | $\frac{1}{2}$ | 13.4 | | 100 | $\frac{3}{4}$ | 124.1 |
| | 120 | $\frac{1}{2}$ | 16.1 | | 120 | $\frac{3}{4}$ | 148.9 |
| | 140 | $\frac{1}{2}$ | 18.7 | | 140 | $\frac{3}{4}$ | 173.7 |
| 7 | 80 | 9-16 | 16.9 | 13 | 80 | $\frac{3}{4}$ | 122.6 |
| | 100 | 9-16 | 21.1 | | 100 | $\frac{3}{4}$ | 153.2 |
| | 120 | 9-16 | 25.3 | | 120 | $\frac{3}{4}$ | 183.9 |
| 8 | 80 | $\frac{5}{8}$ | 22. | 14 | 80 | $\frac{7}{8}$ | 148. |
| | 100 | $\frac{5}{8}$ | 27.5 | | 100 | $\frac{7}{8}$ | 185. |
| | 120 | $\frac{5}{8}$ | 33. | | 120 | $\frac{7}{8}$ | 222. |
| 9 | 80 | $\frac{5}{8}$ | 41.5 | 15 | 80 | $\frac{7}{8}$ | 217. |
| | 100 | $\frac{5}{8}$ | 51.9 | | 100 | $\frac{7}{8}$ | 259. |
| | 120 | $\frac{5}{8}$ | 62.2 | | 120 | $\frac{7}{8}$ | 300. |

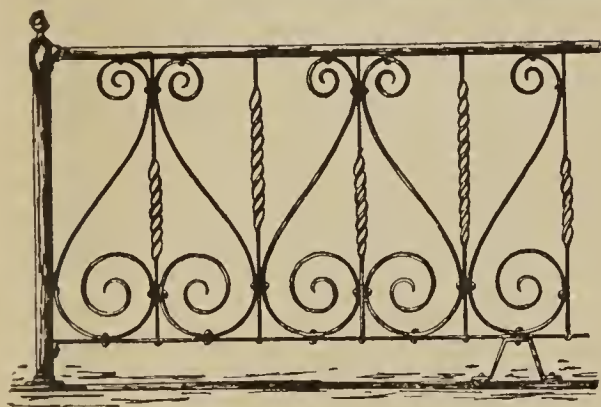
SPOKANE ORNAMENTAL IRON & WIRE WORKS.



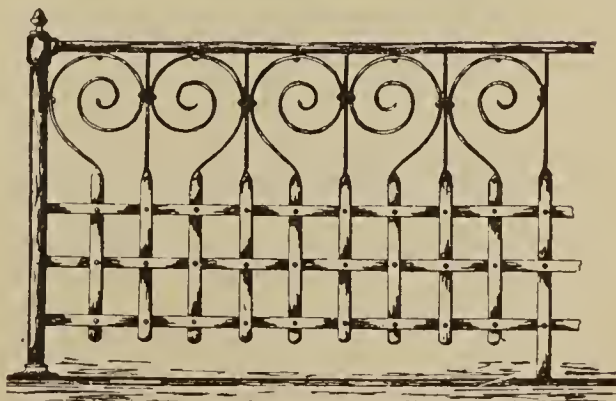
No. 402



No. 403



No. 405



No. 406

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

No. 407. 32 inches high, \$3.00 per lineal foot.

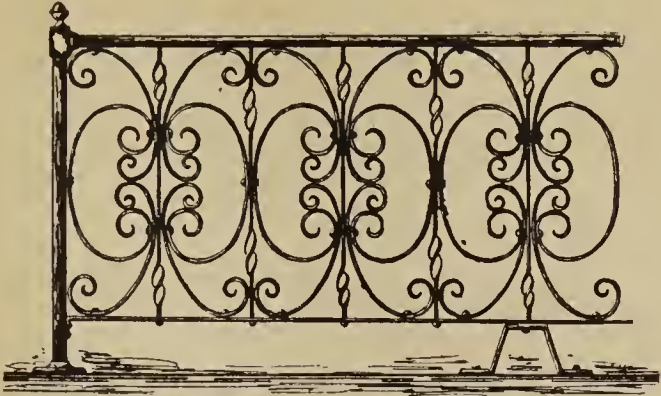
No. 408. 32 inches high, \$2.00 per lineal foot.

No. 409. 32 inches high, \$2.80 per lineal foot.

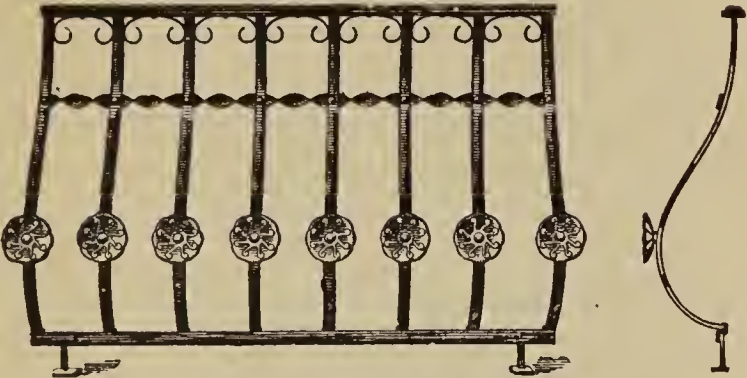
Sizes of material are $\frac{3}{4}$ by 3-16 inch and 1 inch standard size pipe posts and rails.

WEIGHT OF SQUARE CAST IRON PER FOOT.

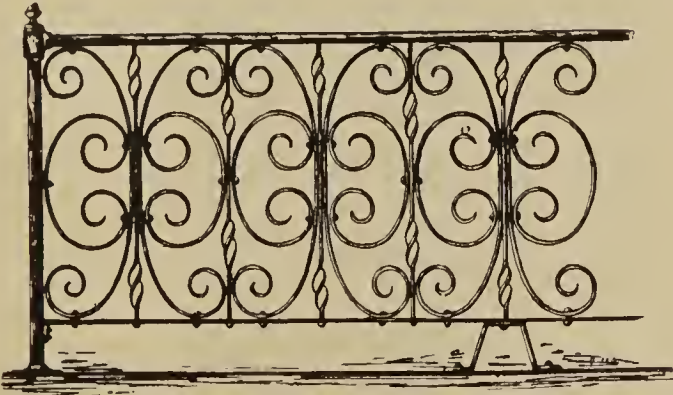
| Size. | Weight. | Size. | Weight. |
|----------------|---------|----------------|---------|
| Inches square. | Pounds. | Inches square. | Pounds. |
| $\frac{1}{2}$ | .78 | 4 | 50. |
| $\frac{5}{8}$ | 1.22 | $4\frac{1}{8}$ | 53.14 |
| $\frac{3}{4}$ | 1.75 | $4\frac{1}{4}$ | 56.44 |
| $\frac{7}{8}$ | 2.39 | $4\frac{3}{8}$ | 59.81 |
| 1 | 3.12 | $4\frac{1}{2}$ | 63.28 |
| $1\frac{1}{8}$ | 3.95 | $4\frac{5}{8}$ | 66.84 |
| $1\frac{1}{4}$ | 4.88 | $4\frac{3}{4}$ | 70.50 |
| $1\frac{3}{8}$ | 5.90 | $4\frac{7}{8}$ | 74.26 |
| $1\frac{1}{2}$ | 7.03 | 5 | 78.12 |
| $1\frac{5}{8}$ | 8.25 | $5\frac{1}{8}$ | 82.08 |
| $1\frac{3}{4}$ | 9.57 | $5\frac{1}{4}$ | 86.13 |
| $1\frac{7}{8}$ | 10.98 | $5\frac{3}{8}$ | 90.28 |
| 2 | 12.50 | $5\frac{1}{2}$ | 94.53 |
| $2\frac{1}{8}$ | 14.11 | $5\frac{5}{8}$ | 98.87 |
| $2\frac{1}{4}$ | 15.81 | $5\frac{3}{4}$ | 103.32 |
| $2\frac{3}{8}$ | 17.62 | $5\frac{7}{8}$ | 107.86 |
| $2\frac{1}{2}$ | 19.53 | 6 | 112.50 |
| $2\frac{5}{8}$ | 21.53 | $6\frac{1}{4}$ | 122.08 |
| $2\frac{3}{4}$ | 23.63 | $6\frac{1}{2}$ | 132.03 |
| $2\frac{7}{8}$ | 25.83 | $6\frac{3}{4}$ | 142.38 |
| 3 | 28.12 | 7 | 153.12 |
| $3\frac{1}{8}$ | 30.51 | $7\frac{1}{4}$ | 164.25 |
| $3\frac{1}{4}$ | 33. | $7\frac{1}{2}$ | 175.78 |
| $3\frac{3}{8}$ | 35.59 | $7\frac{3}{4}$ | 187.68 |
| $3\frac{1}{2}$ | 38.28 | 8 | 200.12 |
| $3\frac{5}{8}$ | 41.06 | $8\frac{1}{4}$ | 212.56 |
| $3\frac{3}{4}$ | 43.04 | $8\frac{1}{2}$ | 225.78 |
| $3\frac{7}{8}$ | 46.92 | $8\frac{3}{4}$ | 239.25 |
| | | 9 | 253.12 |



No. 407



No. 408



No. 409

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

No. 410. 32 inches high, \$3.20 per lineal foot.

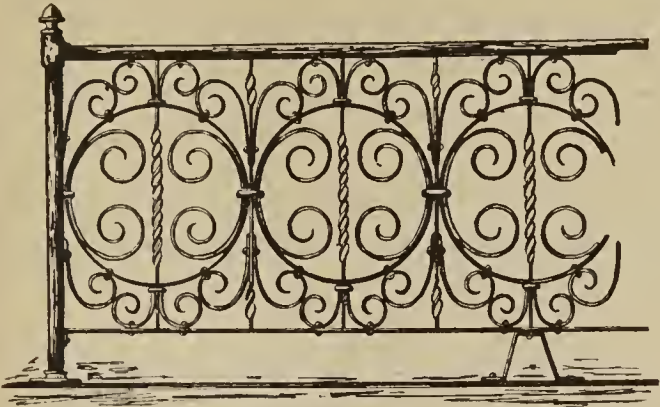
No. 411. Extra heavy altar railing with polished hard wood top,
\$4.00 per lineal foot.

No. 412. \$5.00 per lineal foot.

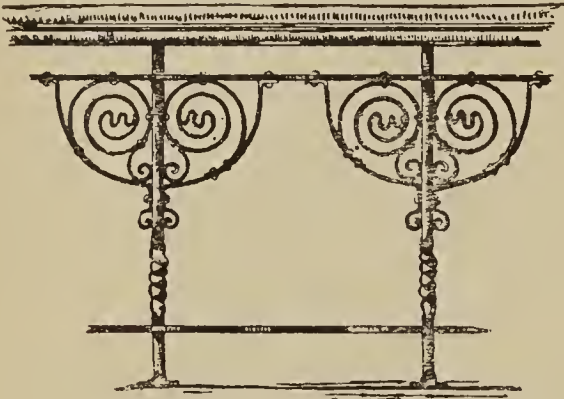
All these railings are of first class workmanship and finish and
can be furnished with brass or bronze hand rails at a slight
advance. Special designs submitted.

WEIGHT OF ROUND CAST IRON PER FOOT.

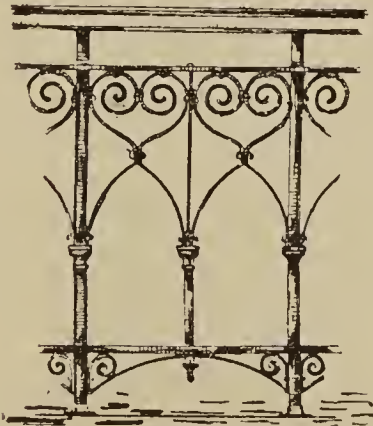
| Size. | Weight. | Size. | Weight. |
|-----------------|---------|-----------------|---------|
| Inches Diam. | Pounds. | Inches Diam. | Pounds. |
| $\frac{1}{2}$ | .61 | $4\frac{1}{8}$ | 41.66 |
| $\frac{5}{8}$ | .95 | $4\frac{1}{4}$ | 44.27 |
| $\frac{3}{4}$ | 1.38 | $4\frac{3}{8}$ | 46.97 |
| $\frac{7}{8}$ | 1.87 | $4\frac{1}{2}$ | 49.70 |
| 1 | 2.45 | $4\frac{5}{8}$ | 52.50 |
| $1\frac{1}{8}$ | 3.10 | $4\frac{3}{4}$ | 55.37 |
| $1\frac{1}{4}$ | 3.83 | $4\frac{7}{8}$ | 58.32 |
| $1\frac{3}{8}$ | 4.64 | 5 | 61.35 |
| $1\frac{1}{2}$ | 5.52 | $5\frac{1}{8}$ | 64.46 |
| $1\frac{5}{8}$ | 6.48 | $5\frac{1}{4}$ | 67.64 |
| $1\frac{3}{4}$ | 7.51 | $5\frac{3}{8}$ | 70.09 |
| $1\frac{7}{8}$ | 8.62 | $5\frac{1}{2}$ | 74.24 |
| 2 | 9.81 | $5\frac{5}{8}$ | 77.65 |
| $2\frac{1}{8}$ | 11.08 | $5\frac{3}{4}$ | 91.14 |
| $2\frac{1}{4}$ | 12.42 | $5\frac{7}{8}$ | 84.71 |
| $2\frac{1}{2}$ | 13.84 | 6 | 88.35 |
| $2\frac{1}{2}$ | 15.33 | $6\frac{1}{4}$ | 95.87 |
| $2\frac{5}{8}$ | 16.91 | $6\frac{1}{2}$ | 103.69 |
| $2\frac{3}{4}$ | 18.56 | $6\frac{3}{4}$ | 111.82 |
| $2\frac{7}{8}$ | 20.28 | 7 | 120.26 |
| 3 | 22.18 | $7\frac{1}{4}$ | 129. |
| $3\frac{1}{8}$ | 23.96 | $7\frac{1}{2}$ | 138.05 |
| $3\frac{1}{4}$ | 25.92 | $7\frac{3}{4}$ | 147.41 |
| $3\frac{3}{8}$ | 27.95 | 8 | 157.08 |
| $3\frac{1}{2}$ | 30.16 | $8\frac{1}{4}$ | 167.05 |
| $3\frac{5}{8}$ | 32.25 | $8\frac{1}{2}$ | 177.19 |
| $3\frac{3}{4}$ | 34.51 | $8\frac{3}{4}$ | 187.91 |
| $3\frac{7}{8}$ | 36.85 | 9 | 198.79 |
| 4 | 39.27 | $9\frac{1}{4}$ | 210. |



No. 410



No. 411



No. 412

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

The following eight pages are devoted to metal bank and office railings in iron, bronze or plated finishes of any kind and we will be pleased to submit special designs to suit place and surroundings free of charge if desired.

No. 125. Heavy cast iron ornamental frame and wrought iron grille work, 3 feet 6 inches high, \$16.00 per lineal foot. Wickets with sign, \$10.00 extra and figured in the rail.

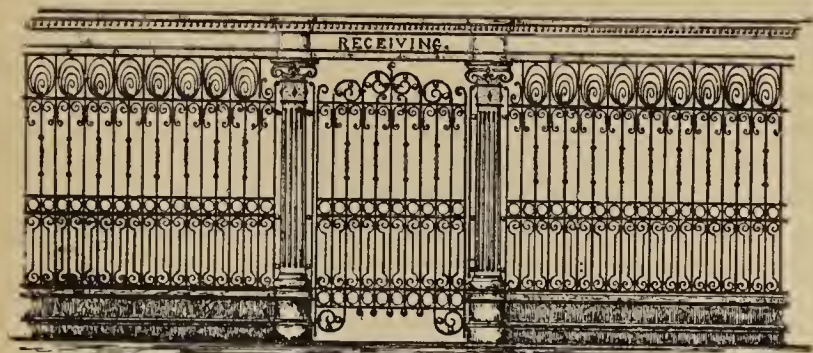
No. 126. 3 feet and 6 inches high, with crystalline bevel plate glass, \$12.00 per lineal foot. Wicket and sign \$6.00 extra and must be measured in the rail.

No. 127. 3 feet and 6 inches high, with double strength crystalline base, \$6.00 per lineal foot. Wicket and sign, \$4.00 extra, which must also be measured in the rail.

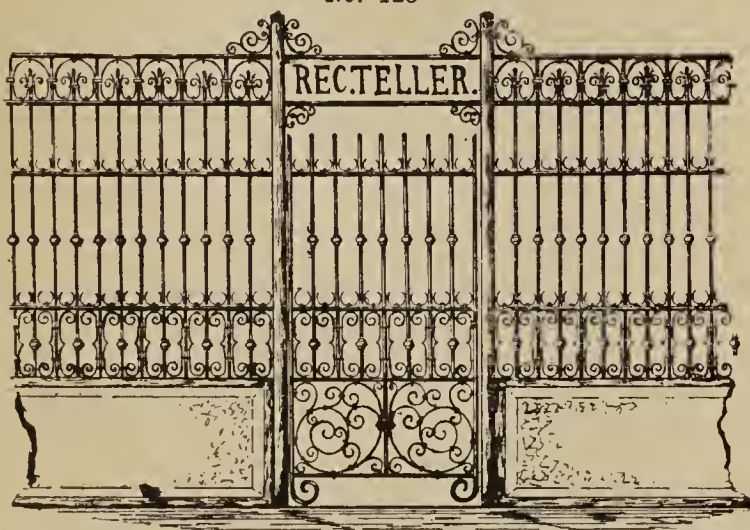
All the above prices are based on our rustless black velvet finish and electroplated or solid bronze fixtures upon special quotations.

WEIGHTS OF A CUBIC FOOT OF EARTH, STONE, METAL, ETC.

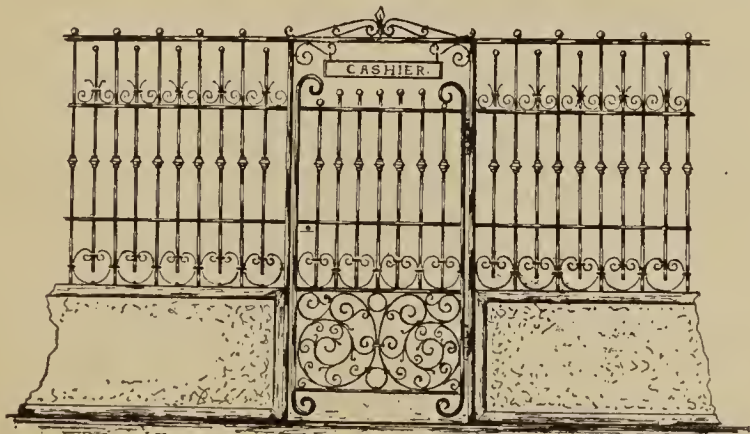
| Article. | Lbs. | Article. | Lbs. |
|--------------------------|-----------------------------------|---------------------------|---------------------------------|
| Alcohol | 49 | Lead, cast | 709 |
| Ash Wood | 53 | Lead, rolled | 711 |
| Bay Wood | 51 | Milk | 64 |
| Brass, gun metal..... | 543 | Maple | 47 |
| Brandy | 58 | Mortar | 110 |
| Beer | 65 | Mud | 102 |
| Blood | 66 | Marble, Italian | 169 |
| Brick, common | 102 | Marble, Vermont | 165 |
| Cork | 15 | Mahogany | 66 |
| Cedar | 35 | Oak, Canadian..... | 54 |
| Copper, cast | 547 | Oak, live, seasoned..... | 67 |
| Copper, plates | 543 | Oak, white, dry..... | 54 |
| Clay | 120 | Oil, linseed | 59 |
| Coal, Lehigh | 56 | Pine, yellow | 34 |
| Coal, Lackawanna..... | 50 | Pine, white | 34 |
| Cider | 64 | Pine, red | 37 |
| Chestnut | 38 | Pine, well seasoned..... | 39 |
| Ebony | 83 | Platina | 1,219 |
| Earth, loose..... | 94 | Red Hickory | 52 |
| Glass, window | 165 | Silver | 625 ³ / ₄ |
| Gold | 1,203 ³ / ₄ | Steel, plates | 487 ³ / ₄ |
| Hickory, pig nut..... | 49 | Steel, soft | 489 |
| Hickory, shell-bark..... | 43 | Stone, common, about..... | 158 |
| Hay, bale | 9 | Sand, wet, about..... | 123 |
| Hay, pressed..... | 25 | Spruce | 31 |
| Honey | 90 | Tin | 455 |
| Iron, cast | 450 | Tar | 63 |
| Iron, plates | 481 | Vinegar | 67 |
| Iron, wrought bars..... | 486 | Water, salt | 64 |
| Ice | 57 ¹ / ₂ | Water, rain | 62 |
| Lignum Vitæ Wood..... | 83 | Willow | 36 |
| Logwood | 57 | Zinc, cast | 428 |



No. 125



No. 126



No. 127

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

No. 128. 3 feet or 3 feet and 6 inches high, double strength crystalline base. 3 feet high, \$8.00 per lineal foot. 3 feet 6 inches high, \$9.00 per lineal foot. Wicket and sign, \$8.00 extra and must be measured in the rail.

No. 114. Flat steel grille work on double strength crystalline glass base and tubular posts. 3 feet high, \$5.00 per lineal foot; 3 feet 6 inches high, \$6.00 per lineal foot. Wicket and sign \$6.00 extra, and must be measured in the rail.

No. 129. Square picket and scroll design, 2 feet high, \$2.00 per lineal foot; 2 feet 6 inches high, \$2.40 per lineal foot. Wicket and sign \$6.00 extra, and measured in the rail. This rail can be filled with glass to any desired height at a slight advance and is, though plain and inexpensive, a neat and substantial fixture.

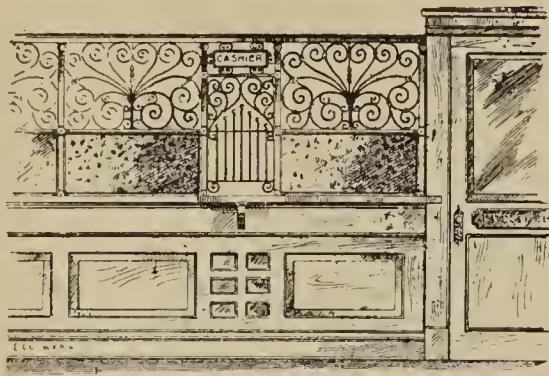
All prices are based on black finish. For close estimates send plan of work required and finish.

HOW TO MIX PAINTS FOR TINTS.

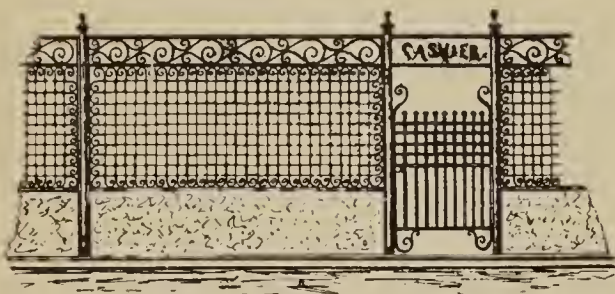
| | |
|--|-----------------|
| Red and Black makes..... | Brown |
| Lake and White makes..... | Rose |
| White and Brown makes..... | Chestnut |
| White, Blue and Lake makes..... | Purple |
| Blue and Lead Color makes..... | Pearl |
| White and Carmine makes..... | Pink |
| Indigo and Lamp-Black makes..... | Silver Gray |
| White and Lamp-Black makes..... | Lead Color |
| Black and Venetian Red makes..... | Chocolate |
| White and Green makes..... | Bright Green |
| Purple and White makes..... | French White |
| Light Green and Black makes..... | Dark Green |
| White and Green makes..... | Pea Green |
| White and Emerald Green makes..... | Brilliant Green |
| Red and Yellow makes..... | Orange |
| White and Yellow makes..... | Straw Color |
| White, Blue and Black makes..... | Pearl Gray |
| White, Lake and Vermillion makes..... | Flesh Color |
| Umber, White and Venetian Red makes..... | Drab |
| White, Yellow and Venetian Red makes..... | Cream |
| Red, Blue, Black and Red makes..... | Olive |
| Yellow, White and a little Venetian Red makes..... | Buff |

NUMBER OF NAILS REQUIRED IN CARPENTER WORK.

To case and hang one door, 1 lb.
To case and hang one window, $\frac{3}{4}$ lb.
Base, 100 lineal feet, 1 lb.
To put on rafters, joists, etc., 3 lbs. to 1,000 feet.
To put up studding, same.
To lay a 6-inch pine floor, 15 lbs. to 1,000 feet.



No. 128



No. 114



No. 129

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

Nos. 111 and 112 Rail, 121, 122 and 102 are five designs in Bessemer steel, very suitable for cashier offices and desk rails.

Nos. 111 and 112. 30 to 42 inches high, \$1.60 per square foot.

No. 121. Same heights, \$1.60 per square foot.

No. 122. Same heights, \$1.20 per square foot.

No. 102. 18 to 36 inches high, 80c per square foot.

Wickets \$5.00 each and must be measured in the rail. Cashier signs in bronze letter on iron back, \$5.00 each.

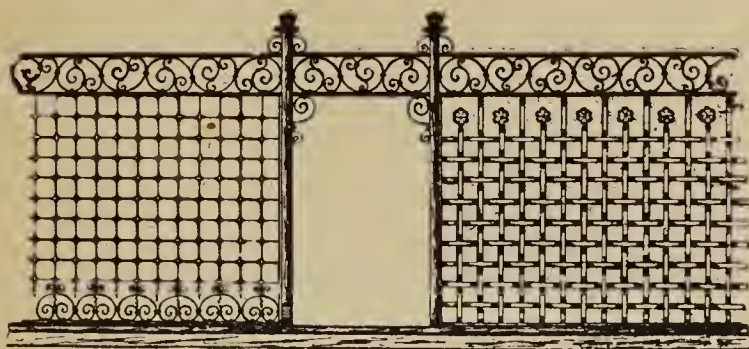
All of the above prices are based on black finish.

DEGREES OF HEAT AND COLD REQUIRED TO FREEZE, MELT AND BOIL THE FOLLOWING SUBSTANCES.

Degrees of Heat Above Zero at Which the Following Articles Melt.

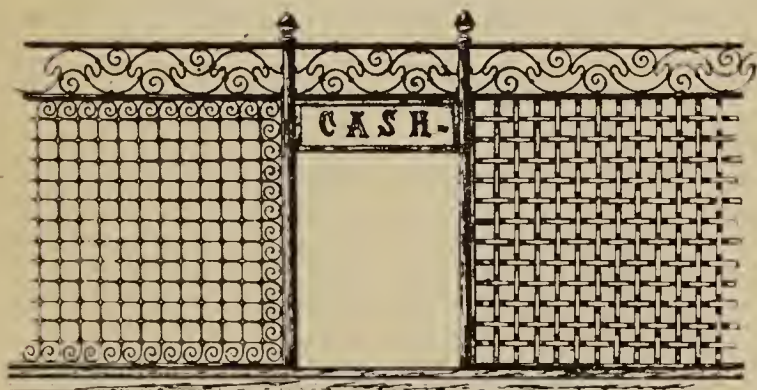
| | |
|--------------------|-------|
| Cast Iron | 3,500 |
| Glass | 2,400 |
| Copper | 2,160 |
| Gold | 1,983 |
| Brass | 1,900 |
| Silver | 1,850 |
| Antimony | 950 |
| Zinc | 780 |
| Lead | 590 |
| Bismuth | 476 |
| Tin | 420 |
| Gutta Percha | 150 |
| Lard | 96 |
| Ice | 35 |

Number of Cubic Feet in a Ton (Avoirdupois) of Different Materials.—Cast Iron, 4.98, Wrought Iron 4.59, Bar Iron 4.69, Steel (soft) 4.57, Steel (hard) 4.59, Copper (sheet) 4.62, Copper (cast) 4.04, Brass 4.17, Lead 3.15, Tin (cast) 4.91, Zinc (cast) 4.98, Granite 13.514, Marble 13.343, Paving Stone 14.83, Millstone 14.42, Grindstone 17, Common Stone 14.22, Fire Brick 16.284, Brick (mean) 21.961, Anthracite Coal 21.284 and 24.958, Cannel Coal 23.609, Cotton Bale (mean) 154.48, Pressed (ditto) from 89.6 to 1.14, Hay (bale) 23.517, Bale (mean) 154.48, Hay (pressed) 89.6, Clay 158.69, Common Soil 16.335, Mud 21.987, Loose Sand 23.893, Earth with Gravel 16.742, India Rubber 39.69, Plaster of Paris 21.3, Glass 12.44, Ice 38.58, Chalk (British) 17.92, Tallow 38, Oil 39, Fresh Water 35.84, Salt Water 34.931.



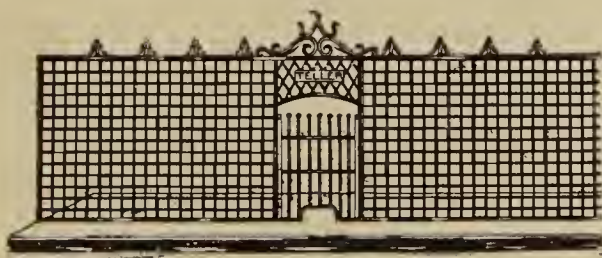
No. 111

No. 112



No. 121

No. 122



No. 102

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

Four designs of Bessemer steel grille work, highly finished and with flat or channel iron frames, to be set into wood work; 18 to 36 inches high.

No. 130. \$1.60 per square foot.

No. 131. \$2.00 per square foot.

No. 132. \$1.40 per square foot.

No. 133. \$1.20 per square foot. (All in black finish.)

In brass or electroplated finish at a slight advance.

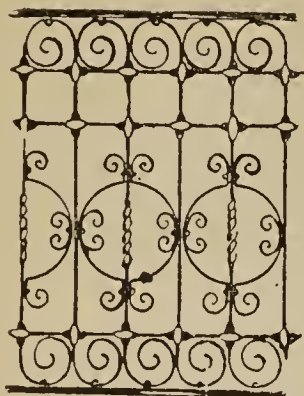
No. 134. Currency guard with plate glass shelf, prices according to size and finish.

BOARD AND PLANK MEASUREMENT AT SIGHT.

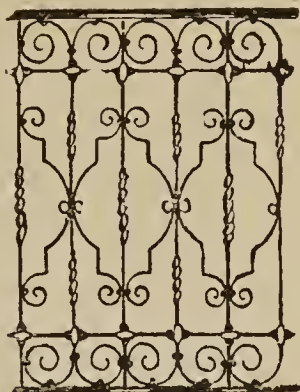
This table gives the square feet and inches in board from 6 to 15 inches wide, and from 8 to 36 feet long. If a board be longer than 36 feet unite two numbers. Thus, if a board is 40 feet long and 16 inches wide, add 30 and 10 and you have 53 feet 4 inches. For 2-inch plank double the product.

| Feet Long. | 6 in. | | 7 in. | | 8 in. | | 9 in. | | 10 in. | |
|---------------|-------|-----|-------|-----|-------|-----|-------|-----|--------|-----|
| | W. | | W. | | W. | | W. | | W. | |
| | ft. | in. | ft. | in. | ft. | in. | ft. | in. | ft. | in. |
| 8..... | 4 | 0 | 4 | 8 | 5 | 4 | 6 | 0 | 6 | 8 |
| 9..... | 4 | 6 | 5 | 3 | 6 | 0 | 6 | 9 | 7 | 6 |
| 10..... | 5 | 0 | 5 | 10 | 6 | 8 | 7 | 6 | 8 | 4 |
| 11..... | 5 | 6 | 6 | 5 | 7 | 4 | 8 | 3 | 9 | 2 |
| 12..... | 6 | 0 | 7 | 0 | 8 | 0 | 9 | 0 | 10 | 0 |
| 13..... | 6 | 6 | 7 | 7 | 8 | 3 | 9 | 9 | 10 | 10 |
| 14..... | 7 | 0 | 8 | 2 | 9 | 4 | 10 | 6 | 11 | 8 |
| 15..... | 7 | 6 | 8 | 9 | 10 | 0 | 11 | 3 | 12 | 6 |
| 16..... | 8 | 0 | 9 | 4 | 10 | 8 | 12 | 0 | 13 | 4 |
| 17..... | 8 | 6 | 9 | 11 | 11 | 4 | 12 | 9 | 14 | 2 |
| 18..... | 9 | 0 | 10 | 6 | 12 | 0 | 13 | 6 | 15 | 0 |
| 19..... | 9 | 6 | 11 | 1 | 12 | 8 | 14 | 3 | 15 | 10 |
| 20..... | 10 | 0 | 11 | 8 | 13 | 4 | 15 | 0 | 16 | 8 |
| 21..... | 10 | 6 | 12 | 3 | 14 | 0 | 15 | 9 | 17 | 6 |
| 22..... | 11 | 0 | 12 | 10 | 14 | 8 | 16 | 6 | 18 | 4 |
| 23..... | 11 | 6 | 13 | 5 | 15 | 4 | 17 | 3 | 19 | 2 |
| 24..... | 12 | 0 | 14 | 0 | 16 | 0 | 18 | 0 | 20 | 0 |
| 25..... | 12 | 6 | 14 | 7 | 16 | 8 | 18 | 9 | 20 | 10 |
| 26..... | 13 | 0 | 15 | 2 | 17 | 4 | 19 | 6 | 21 | 8 |
| 27..... | 13 | 6 | 15 | 9 | 18 | 0 | 20 | 3 | 22 | 6 |
| 28..... | 14 | 0 | 16 | 4 | 18 | 8 | 21 | 0 | 23 | 4 |
| 29..... | 14 | 6 | 16 | 11 | 19 | 4 | 21 | 9 | 24 | 2 |
| 30..... | 15 | 0 | 17 | 6 | 20 | 0 | 22 | 6 | 25 | 0 |
| 31..... | 15 | 6 | 18 | 1 | 20 | 8 | 23 | 3 | 25 | 10 |
| 32..... | 16 | 0 | 18 | 8 | 21 | 4 | 24 | 0 | 26 | 8 |
| 33..... | 16 | 6 | 19 | 3 | 22 | 0 | 24 | 9 | 27 | 6 |
| 34..... | 17 | 0 | 19 | 10 | 22 | 8 | 25 | 6 | 28 | 4 |
| 35..... | 17 | 6 | 20 | 5 | 23 | 4 | 26 | 3 | 29 | 2 |
| 36..... | 18 | 0 | 21 | 0 | 24 | 0 | 27 | 0 | 30 | 0 |

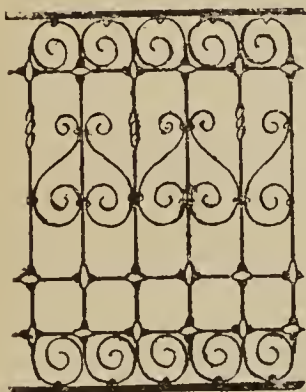
(Continued on page 46)



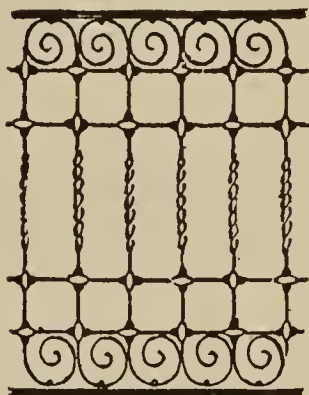
No. 130



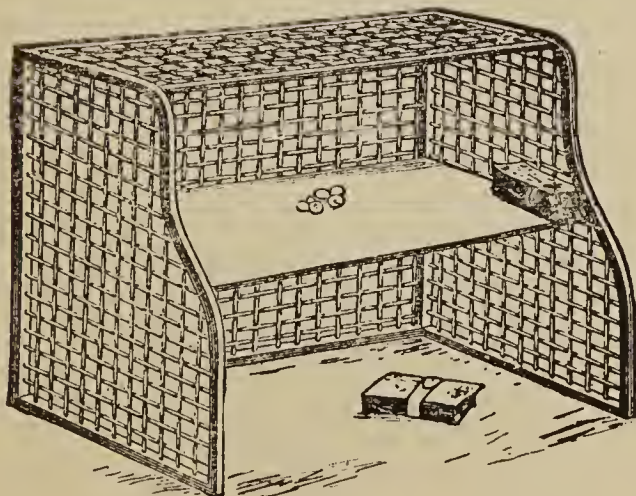
No. 131



No. 132



No. 133



No. 134

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

No. 135. Wire office enclosure, very suitable for combination offices, can easily be remodeled to suit when changing locations and lasts a life time. Lower floor rail 3 feet high, \$1.20 per lineal foot. Higher rail, made of finer mesh, 60c per square foot. O. G. ends, \$2.00 each. Gates with good lock, \$7.50 each, and to be measured in the rail. All painted any desired color and trimmed with gold bronze or finished in black.

No. 136. Floor rail, 3 feet high, \$1.60 per lineal foot. Gates, \$5.00 extra, and are measured in the rail.

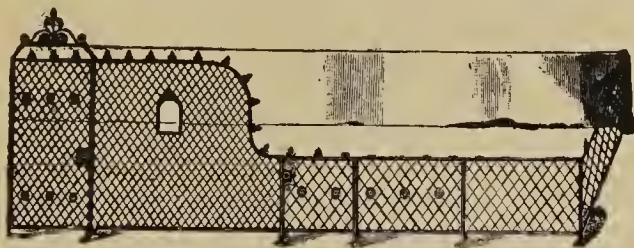
No. 101. Channel frame desk rail, 15 to 36 inches high. 15 to 24 inches high, 80c per square foot. 24 to 36 inches high, 60c per square foot. Wings, \$1.00. Openings, \$1.00. Gates, \$4.00 extra each.

No. 100. Round frame desk railing, 15 to 36 inches high, 50c per square foot. Openings, 75c, with gate, \$1.80, wings, 80c each, and are measured in the rail.

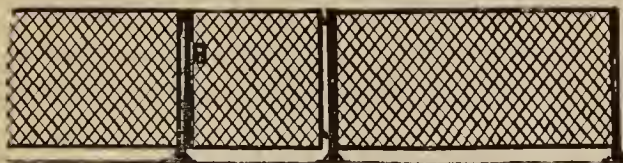
No. 137. Standard wire cage work, in one-inch channel frame, 1 3/4 inch mesh, No. 10 wire, with swing or sliding door, 6 to 7 feet high, 60c per square foot. Gates, \$7.50 each, and are measured in the rail.

BOARD AND PLANK MEASUREMENT AT SIGHT.

| Feet Long. | 11 in. | | 12 in. | | 13 in. | | 14 in. | | 15 in. | |
|---------------|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|
| | W. | | W. | | W. | | W. | | W. | |
| | ft. | in. | ft. | in. | ft. | in. | ft. | in. | ft. | in. |
| 8..... | 7 | 4 | 8 | 0 | 8 | 8 | 9 | 4 | 10 | 0 |
| 9..... | 8 | 3 | 9 | 0 | 9 | 9 | 10 | 6 | 11 | 3 |
| 10..... | 9 | 2 | 10 | 0 | 10 | 10 | 11 | 8 | 12 | 6 |
| 11..... | 10 | 1 | 11 | 0 | 11 | 11 | 12 | 10 | 12 | 9 |
| 12..... | 11 | 0 | 12 | 0 | 13 | 0 | 14 | 0 | 15 | 0 |
| 13..... | 11 | 11 | 13 | 0 | 14 | 1 | 15 | 2 | 16 | 3 |
| 14..... | 12 | 10 | 14 | 0 | 15 | 2 | 16 | 4 | 17 | 6 |
| 15..... | 13 | 9 | 15 | 0 | 16 | 3 | 17 | 6 | 18 | 9 |
| 16..... | 14 | 8 | 16 | 0 | 17 | 4 | 18 | 8 | 20 | 0 |
| 17..... | 15 | 7 | 17 | 0 | 18 | 5 | 19 | 10 | 21 | 3 |
| 18..... | 16 | 6 | 18 | 0 | 19 | 6 | 21 | 0 | 22 | 6 |
| 19..... | 17 | 5 | 19 | 0 | 20 | 7 | 22 | 2 | 23 | 9 |
| 20..... | 18 | 4 | 20 | 0 | 21 | 8 | 23 | 4 | 25 | 0 |
| 21..... | 19 | 3 | 21 | 0 | 22 | 9 | 24 | 6 | 26 | 3 |
| 22..... | 20 | 2 | 22 | 0 | 23 | 10 | 25 | 8 | 27 | 6 |
| 23..... | 21 | 1 | 23 | 0 | 24 | 11 | 26 | 10 | 28 | 9 |
| 24..... | 22 | 0 | 24 | 0 | 26 | 0 | 28 | 0 | 30 | 0 |
| 25..... | 22 | 11 | 25 | 0 | 27 | 1 | 29 | 2 | 31 | 3 |
| 26..... | 23 | 10 | 26 | 0 | 28 | 2 | 30 | 4 | 32 | 6 |
| 27..... | 24 | 9 | 27 | 0 | 29 | 3 | 31 | 6 | 33 | 9 |
| 28..... | 25 | 8 | 28 | 0 | 30 | 4 | 32 | 8 | 35 | 0 |
| 29..... | 26 | 7 | 29 | 0 | 31 | 5 | 33 | 10 | 36 | 3 |
| 30..... | 27 | 6 | 30 | 0 | 32 | 6 | 35 | 0 | 37 | 6 |
| 31..... | 28 | 5 | 31 | 0 | 33 | 7 | 36 | 2 | 38 | 9 |
| 32..... | 29 | 4 | 32 | 0 | 34 | 8 | 37 | 4 | 40 | 0 |
| 33..... | 30 | 3 | 33 | 0 | 35 | 9 | 38 | 6 | 41 | 3 |
| 34..... | 31 | 2 | 34 | 0 | 36 | 10 | 39 | 8 | 42 | 6 |
| 35..... | 32 | 1 | 35 | 0 | 37 | 11 | 40 | 10 | 43 | 9 |
| 36..... | 33 | 0 | 36 | 0 | 39 | 0 | 42 | 0 | 45 | 0 |



No. 135



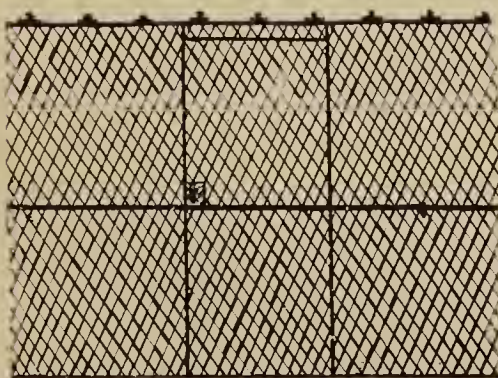
No. 136



No. 101



No. 100



No. 137

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

No. 138. Standard bank cage work, square mesh Bessemer steel top; 7 feet high, 80c per square foot, in black finish. Sliding gates, with best double anti-friction hangers, self-closing and Yale locks, \$10.00 each, and measured in the railing.

No. 1213. Wicket, standard size, 18 by 27 inches, in iron, brass or electroplated finish, with flat key lock, in black finish, \$16.00.

No. 1206. \$10.00.

No. 1207. \$12.00.

No. 1209. \$20.00.

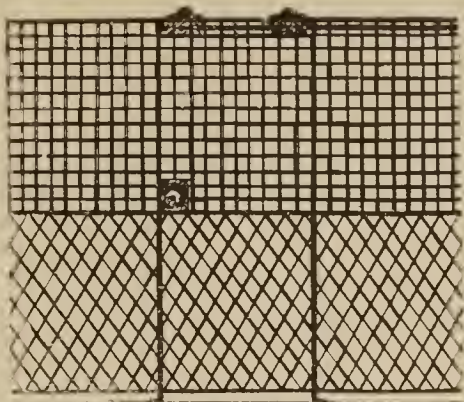
HORSE POWER OF TRANSMISSION ROPE AT VARIOUS SPEEDS.

We give herewith a table of the horse-power of driving ropes, and the diameter of pulleys that should be used for this purpose. The table takes into consideration the effects of the centrifugal force, so that the strain on the rope is constant on the driving side in transmitting the tubular power, no matter what the speed may be. We are aware that many engineers recommend a much larger horse-power than is given in this table, but we believe the estimates here given are advisable except in temporary installations.

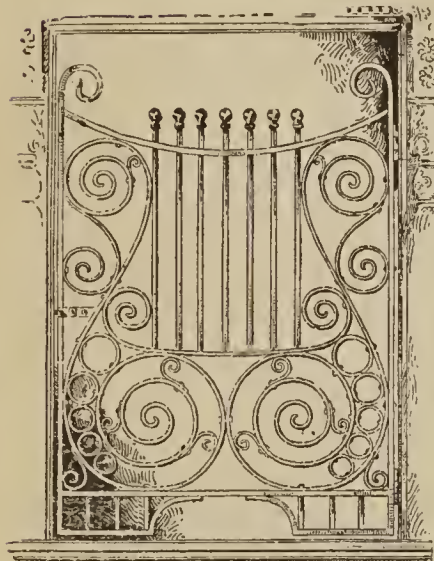
| Diameter of Rope. | Speed of the Rope in Feet per Minute. | | | | | | Smallest Diameter of Pulleys in inches |
|-------------------|---------------------------------------|-------|-------|-------|-------|-------|--|
| | 1,500 | 2,000 | 2,500 | 3,000 | 3,500 | 4,000 | |
| 1/2..... | 1.45 | 1.9 | 2.3 | 2.7 | 3. | 3.2 | 20 |
| 5/8..... | 2.3 | 3.2 | 3.6 | 4.2 | 4.6 | 5.0 | 25 |
| 3/4..... | 3.3 | 4.3 | 5.2 | 5.8 | 6.7 | 7.2 | 30 |
| 7/8..... | 4.5 | 5.9 | 7.0 | 8.2 | 9.1 | 9.8 | 36 |
| 1..... | 5.8 | 7.7 | 9.2 | 10.7 | 11.9 | 12.8 | 42 |
| 1 1/4..... | 9.2 | 12.1 | 14.3 | 16.8 | 18.6 | 20.0 | 54 |
| 1 1/2..... | 13.1 | 17.4 | 20.7 | 23.1 | 26.8 | 28.8 | 60 |
| 1 3/4..... | 18. | 23.7 | 28.2 | 32.8 | 36.4 | 39.2 | 72 |
| 2..... | 23.1 | 30.8 | 36.8 | 42.8 | 47.6 | 51.2 | 84 |

| Diameter of Rope. | Speed of the Rope in Feet per Minute. | | | | | Smallest Diameter of Pulleys in inches. |
|-------------------|---------------------------------------|-------|-------|-------|-------|---|
| | 4,500 | 5,000 | 6,000 | 7,000 | 8,000 | |
| 1/2..... | 3.4 | 3.4 | 3.1 | 2.2 | 0 | 20 |
| 5/8..... | 5.3 | 5.3 | 4.9 | 3.4 | 0 | 25 |
| 3/4..... | 7.7 | 7.7 | 7.1 | 4.9 | 0 | 30 |
| 7/8..... | 10.8 | 10.7 | 9.3 | 6.9 | 0 | 36 |
| 1..... | 13.6 | 13.7 | 12.5 | 8.8 | 0 | 42 |
| 1 1/4..... | 21.2 | 21.4 | 19.5 | 13.8 | 0 | 54 |
| 1 1/2..... | 30.6 | 30.8 | 28.2 | 19.8 | 0 | 60 |
| 1 3/4..... | 41.5 | 41.8 | 37.4 | 27.6 | 0 | 72 |
| 2..... | 54.4 | 54.8 | 50. | 35.2 | 0 | 84 |

For a temporary installation when the rope is not to be long in use, it might be advisable to increase the work to double that given in the table.



No. 138



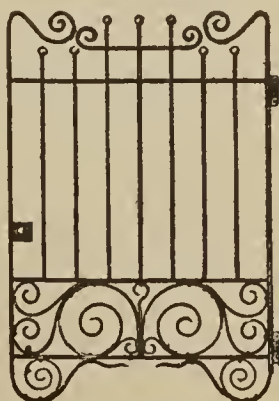
No. 1209



No. 1213



No. 1206



No. 1207

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

Wicket No. 1214. \$12.00.

No. 1215. \$8.00 each.

No. 1216. Stationary, \$6.00 each.

Wing No. 1217. Standard size, 18 by 30 inches, \$12.00.

Transmission and Hoisting Ropes with Nineteen Wires to the Strand—Iron.

| Trade No. | Circumference in inches. | Diameter. | Weight per ft. in lbs. of rope with Hemp Cen. | Breaking strain in tons of 2,000 lbs. | Proper work-load in tons of 2,000 lbs. | Circumference of Hemp rope of equal strength. | Min. size of drum or sheave in ft. |
|------------------|--------------------------|-----------------|---|---------------------------------------|--|---|------------------------------------|
| 1 | 6 $\frac{3}{4}$ | 2 $\frac{1}{4}$ | 7.80 | 74 | 15 | 15 $\frac{1}{2}$ | 8 |
| 2 | 6 | 2 | 6.02 | 65 | 13 | 14 $\frac{1}{2}$ | 7 |
| 3 | 5 $\frac{1}{2}$ | 1 $\frac{3}{4}$ | 5.08 | 54 | 11 | 13 | 6 $\frac{1}{2}$ |
| 4 | 5 | 1 $\frac{5}{8}$ | 4.10 | 44 | 9 | 12 | 5 |
| 5 | 4 $\frac{3}{8}$ | 1 $\frac{1}{2}$ | 3.10 | 35 | 7 | 10 $\frac{3}{4}$ | 4 $\frac{1}{2}$ |
| 6 | 4 | 1 $\frac{1}{4}$ | 2.44 | 27 | 5 $\frac{1}{2}$ | 9 $\frac{1}{2}$ | 4 |
| 7 | 3 $\frac{1}{2}$ | 1 $\frac{1}{8}$ | 1.95 | 20 | 4 | 8 | 3 $\frac{1}{2}$ |
| 8 | 3 $\frac{1}{8}$ | 1 | 1.50 | 16 | 3 | 7 | 3 |
| 9 | 2 $\frac{3}{4}$ | $\frac{7}{8}$ | 1.14 | 11 $\frac{1}{2}$ | 2 $\frac{1}{2}$ | 6 | 2 $\frac{3}{4}$ |
| 10 | 2 $\frac{1}{4}$ | $\frac{3}{4}$ | 0.83 | 8.64 | 1 $\frac{3}{4}$ | 5 | 2 $\frac{1}{2}$ |
| 10 $\frac{1}{4}$ | 2 | $\frac{5}{8}$ | 0.65 | 5.13 | 1 $\frac{1}{4}$ | 4 $\frac{1}{4}$ | 2 |
| 10 $\frac{1}{2}$ | 1 $\frac{5}{8}$ | 9-16 | 0.44 | 4.27 | $\frac{3}{4}$ | 4 | 1 $\frac{3}{4}$ |
| 10 $\frac{3}{4}$ | 1 $\frac{1}{2}$ | $\frac{1}{2}$ | 0.35 | 3.48 | $\frac{1}{2}$ | 3 $\frac{1}{2}$ | 1 $\frac{1}{2}$ |

STRENGTH OF MANILA AND HEMP ROPES.

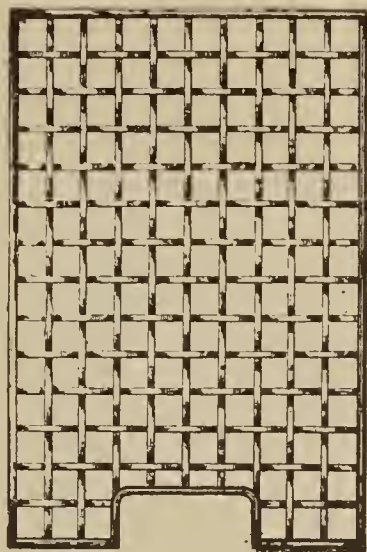
The strength of rope is very irregular, much depending on the quality of the fibre used and the solidity in which the rope is put together. For instance, 3 $\frac{1}{4}$ inch circumference soft-laid rope will not measure over 3-inch circumference hard-laid.

Our tests of the various makes of rope from the manila fibre show about the following average maximum strength:

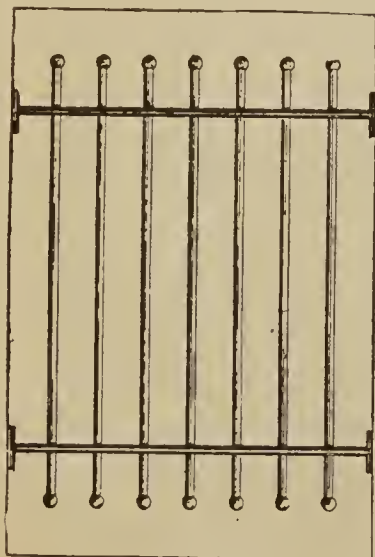
3 inch circumference soft-laid.....7,300 lbs
 3 inch circumference medium-laid....8,000 lbs.
 3 inch circumference hard-laid.....9,000 lbs.



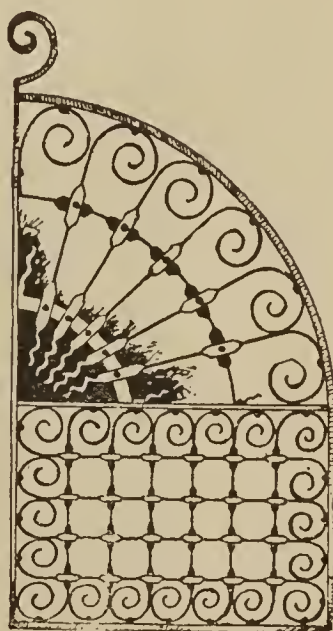
No. 1214



No. 1215



No. 1216



No. 1217

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

Wing No. 1218. \$10.00.

No. 1219. \$10.00.

No. 1220. \$4.00.

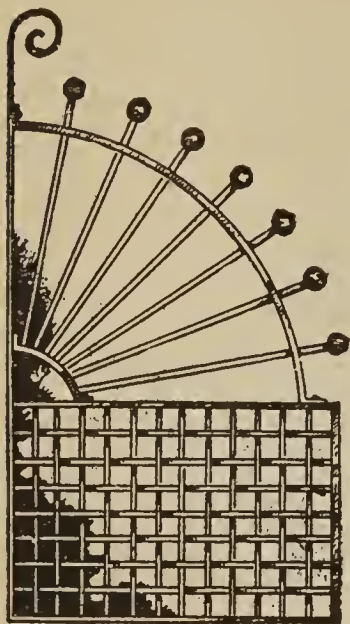
No. 1750. Shows a collapsing elevator gate, substantially built in wrought steel; full width of opening can be utilized and we make various styles and weights.

Prices on application.

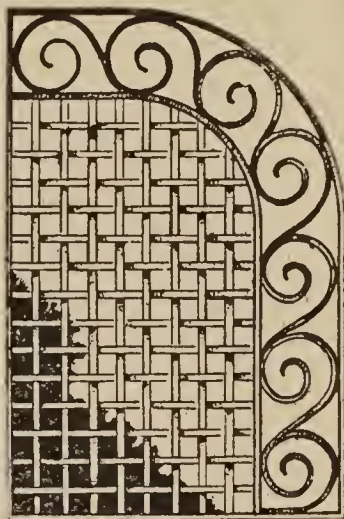
WEIGHT OF IRON PER FOOT.

| Round. | | Square. | | Flat. | |
|-----------------|---------|-----------------|---------|---------------------------------|---------|
| Size. | Weight. | Size. | Weight. | Size. | Weight. |
| $\frac{1}{4}$ | .163 | $\frac{1}{4}$ | .208 | 1 x $\frac{1}{4}$ | .833 |
| $\frac{3}{8}$ | .368 | $\frac{3}{8}$ | .468 | 1 $\frac{1}{8}$ x $\frac{1}{4}$ | .937 |
| $\frac{1}{2}$ | .654 | $\frac{1}{2}$ | .833 | 1 $\frac{1}{4}$ x $\frac{1}{4}$ | 1.04 |
| $\frac{5}{8}$ | 1.02 | $\frac{5}{8}$ | 1.30 | 1 $\frac{3}{8}$ x $\frac{1}{4}$ | 1.14 |
| $\frac{3}{4}$ | 1.47 | $\frac{3}{4}$ | 1.87 | 1 $\frac{1}{2}$ x $\frac{1}{4}$ | 1.25 |
| $\frac{7}{8}$ | 2.00 | $\frac{7}{8}$ | 2.55 | 1 $\frac{3}{4}$ x $\frac{1}{4}$ | 1.45 |
| 1 | 2.61 | 1 | 3.33 | 2 x $\frac{1}{4}$ | 1.66 |
| 1 $\frac{1}{8}$ | 3.31 | 1 $\frac{1}{8}$ | 4.21 | 2 $\frac{1}{4}$ x $\frac{1}{4}$ | 1.87 |
| 1 $\frac{1}{4}$ | 4.09 | 1 $\frac{1}{4}$ | 5.20 | 2 $\frac{1}{2}$ x $\frac{1}{4}$ | 2.08 |
| 1 $\frac{3}{8}$ | 4.95 | 1 $\frac{3}{8}$ | 6.30 | 2 $\frac{3}{4}$ x $\frac{1}{4}$ | 2.29 |
| 1 $\frac{1}{2}$ | 5.89 | 1 $\frac{1}{2}$ | 7.50 | 3 x $\frac{1}{4}$ | 2.50 |
| 1 $\frac{5}{8}$ | 6.91 | 1 $\frac{5}{8}$ | 8.80 | 3 $\frac{1}{4}$ x $\frac{1}{4}$ | 2.70 |
| 1 $\frac{3}{4}$ | 8.01 | 1 $\frac{3}{4}$ | 10.20 | 3 $\frac{1}{2}$ x $\frac{1}{4}$ | 2.91 |
| 1 $\frac{7}{8}$ | 9.20 | 1 $\frac{7}{8}$ | 11.71 | 3 $\frac{3}{4}$ x $\frac{1}{4}$ | 3.12 |
| 2 | 10.47 | 2 | 13.33 | 4 x $\frac{1}{4}$ | 3.33 |
| 2 $\frac{1}{8}$ | 11.82 | 2 $\frac{1}{8}$ | 15.05 | 4 $\frac{1}{2}$ x $\frac{1}{4}$ | 3.75 |
| 2 $\frac{1}{4}$ | 13.25 | 2 $\frac{1}{4}$ | 16.87 | 5 x $\frac{1}{4}$ | 4.17 |
| 2 $\frac{3}{8}$ | 14.76 | 2 $\frac{1}{2}$ | 20.80 | 6 x $\frac{1}{4}$ | 5.00 |
| 2 $\frac{1}{2}$ | 16.36 | 2 $\frac{3}{4}$ | 25.20 | 1 x $\frac{3}{8}$ | 1.25 |
| 2 $\frac{3}{4}$ | 19.79 | 3 | 30.00 | 1 $\frac{1}{8}$ x $\frac{3}{8}$ | 1.40 |
| 3 | 23.56 | 3 $\frac{1}{8}$ | 32.55 | 1 $\frac{1}{4}$ x $\frac{3}{8}$ | 1.56 |
| 3 $\frac{1}{8}$ | 25.56 | 3 $\frac{1}{4}$ | 35.20 | 1 $\frac{3}{8}$ x $\frac{3}{8}$ | 1.71 |
| 3 $\frac{1}{4}$ | 27.65 | 3 $\frac{3}{8}$ | 37.96 | 1 $\frac{1}{2}$ x $\frac{3}{8}$ | 1.87 |
| 3 $\frac{3}{8}$ | 29.82 | 3 $\frac{1}{2}$ | 40.80 | 1 $\frac{3}{4}$ x $\frac{3}{8}$ | 2.18 |
| 3 $\frac{1}{2}$ | 32.07 | 3 $\frac{3}{4}$ | 46.87 | 2 x $\frac{3}{8}$ | 2.50 |
| 3 $\frac{3}{4}$ | 36.81 | 4 | 53.33 | 2 $\frac{1}{4}$ x $\frac{3}{8}$ | 2.81 |
| 4 | 41.88 | 4 $\frac{1}{4}$ | 60.20 | 2 $\frac{1}{2}$ x $\frac{3}{8}$ | 3.12 |
| 4 $\frac{1}{8}$ | 44.54 | 4 $\frac{1}{2}$ | 67.50 | 2 $\frac{3}{4}$ x $\frac{3}{8}$ | 3.43 |
| 4 $\frac{1}{4}$ | 47.23 | 4 $\frac{3}{4}$ | 75.20 | 3 x $\frac{3}{8}$ | 3.75 |
| 4 $\frac{3}{8}$ | 50.11 | 5 | 83.33 | 3 $\frac{1}{2}$ x $\frac{3}{8}$ | 4.37 |
| 4 $\frac{1}{2}$ | 53.01 | 5 $\frac{1}{4}$ | 93.20 | 4 x $\frac{3}{8}$ | 5.00 |
| 4 $\frac{3}{4}$ | 59.06 | 5 $\frac{1}{2}$ | 102.20 | 5 x $\frac{3}{8}$ | 6.25 |
| 5 | 65.45 | 6 | 112.20 | 6 x $\frac{3}{8}$ | 7.50 |
| 5 $\frac{1}{4}$ | 73.02 | ..... | ..... | 1 x $\frac{1}{2}$ | 1.66 |
| 5 $\frac{1}{2}$ | 80.03 | ..... | ..... | 1 $\frac{1}{8}$ x $\frac{1}{2}$ | 1.87 |
| 5 $\frac{3}{4}$ | 87.08 | ..... | ..... | 1 $\frac{1}{4}$ x $\frac{1}{2}$ | 2.08 |
| 6 | 95.06 | ..... | ..... | 1 $\frac{3}{8}$ x $\frac{1}{2}$ | 2.29 |
| 6 $\frac{1}{2}$ | 112.02 | ..... | ..... | 1 $\frac{1}{2}$ x $\frac{1}{2}$ | 2.50 |

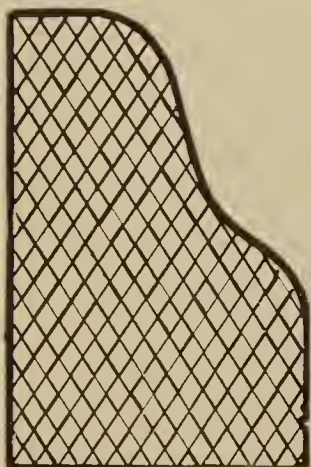
(Continued on page 54)



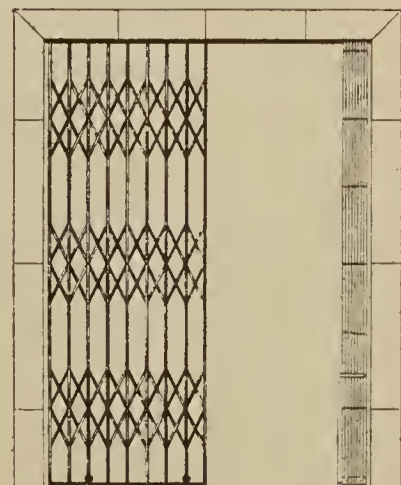
No. 1218



No. 1219



No. 1220



No. 1750

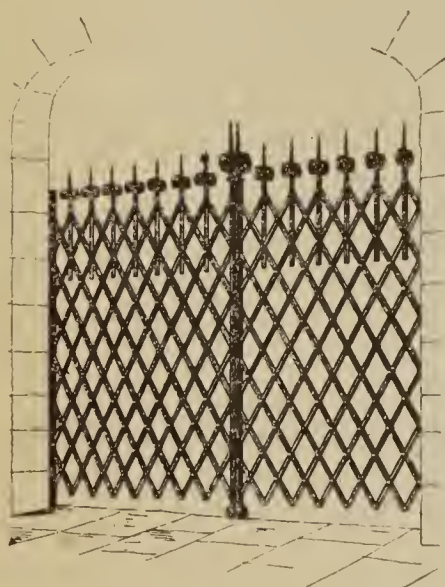
SPOKANE ORNAMENTAL IRON & WIRE WORKS.

WEIGHT OF IRON PER FOOT—Continued.

| Flat. | | Flat. | |
|---------------------------------|---------|---------------------------------|---------|
| Size. | Weight. | Size. | Weight. |
| 1 $\frac{3}{4}$ x $\frac{1}{2}$ | 2.91 | 4 $\frac{1}{2}$ x $\frac{3}{4}$ | 11.25 |
| 2 x $\frac{1}{2}$ | 3.33 | 5 x $\frac{3}{4}$ | 12.50 |
| 2 $\frac{1}{4}$ x $\frac{1}{2}$ | 3.74 | 5 $\frac{1}{2}$ x $\frac{3}{4}$ | 13.75 |
| 2 $\frac{1}{2}$ x $\frac{1}{4}$ | 4.16 | 6 x $\frac{3}{4}$ | 15.00 |
| 2 $\frac{3}{4}$ x $\frac{1}{2}$ | 4.58 | 1 x $\frac{7}{8}$ | 2.91 |
| 3 x $\frac{1}{2}$ | 5.00 | 1 $\frac{1}{8}$ x $\frac{7}{8}$ | 3.23 |
| 3 $\frac{1}{2}$ x $\frac{1}{2}$ | 5.83 | 1 $\frac{1}{4}$ x $\frac{7}{8}$ | 3.6 |
| 4 x $\frac{1}{2}$ | 6.66 | 1 $\frac{3}{8}$ x $\frac{7}{8}$ | 4.01 |
| 5 x $\frac{1}{2}$ | 8.33 | 1 $\frac{1}{2}$ x $\frac{7}{8}$ | 4.37 |
| 6 x $\frac{1}{2}$ | 10.00 | 1 $\frac{3}{4}$ x $\frac{7}{8}$ | 5.10 |
| 1 x $\frac{5}{8}$ | 2.08 | 2 x $\frac{7}{8}$ | 5.83 |
| 1 $\frac{1}{8}$ x $\frac{5}{8}$ | 2.34 | 2 $\frac{1}{4}$ x $\frac{7}{8}$ | 6.56 |
| 1 $\frac{1}{4}$ x $\frac{5}{8}$ | 2.60 | 2 $\frac{1}{2}$ x $\frac{7}{8}$ | 7.29 |
| 1 $\frac{3}{8}$ x $\frac{5}{8}$ | 2.86 | 2 $\frac{3}{4}$ x $\frac{7}{8}$ | 8.02 |
| 1 $\frac{1}{2}$ x $\frac{5}{8}$ | 3.12 | 3 x $\frac{7}{8}$ | 8.75 |
| 1 $\frac{3}{4}$ x $\frac{5}{8}$ | 3.64 | 3 $\frac{1}{2}$ x $\frac{7}{8}$ | 10.20 |
| 2 x $\frac{5}{8}$ | 4.16 | 4 x $\frac{7}{8}$ | 11.66 |
| 2 $\frac{1}{4}$ x $\frac{5}{8}$ | 4.68 | 4 $\frac{1}{2}$ x $\frac{7}{8}$ | 13.12 |
| 2 $\frac{1}{2}$ x $\frac{5}{8}$ | 5.20 | 5 x $\frac{7}{8}$ | 14.58 |
| 2 $\frac{3}{4}$ x $\frac{5}{8}$ | 5.72 | 5 $\frac{1}{2}$ x $\frac{7}{8}$ | 16.04 |
| 3 x $\frac{5}{8}$ | 6.25 | 6 x $\frac{7}{8}$ | 17.50 |
| 3 $\frac{1}{2}$ x $\frac{5}{8}$ | 7.29 | 1 $\frac{1}{8}$ x 1 | 3.75 |
| 4 x $\frac{5}{8}$ | 8.33 | 1 $\frac{1}{4}$ x 1 | 4.16 |
| 5 x $\frac{5}{8}$ | 10.41 | 1 $\frac{3}{8}$ x 1 | 4.5 |
| 6 x $\frac{5}{8}$ | 12.50 | 1 $\frac{1}{2}$ x 1 | 5.00 |
| 1 x $\frac{3}{4}$ | 2.50 | 1 $\frac{3}{4}$ x 1 | 5.83 |
| 1 $\frac{1}{8}$ x $\frac{3}{4}$ | 2.81 | 2 x 1 | 6.66 |
| 1 $\frac{1}{4}$ x $\frac{3}{4}$ | 3.12 | 2 $\frac{1}{4}$ x 1 | 7.50 |
| 1 $\frac{3}{8}$ x $\frac{3}{4}$ | 3.43 | 2 $\frac{1}{2}$ x 1 | 8.33 |
| 1 $\frac{1}{2}$ x $\frac{3}{4}$ | 3.75 | 2 $\frac{3}{4}$ x 1 | 9.16 |
| 1 $\frac{3}{4}$ x $\frac{3}{4}$ | 4.37 | 3 x 1 | 10.00 |
| 2 x $\frac{3}{4}$ | 5.00 | 3 $\frac{1}{2}$ x 1 | 11.66 |
| 2 $\frac{1}{4}$ x $\frac{3}{4}$ | 5.62 | 4 x 1 | 13.33 |
| 2 $\frac{1}{2}$ x $\frac{3}{4}$ | 6.25 | 4 $\frac{1}{2}$ x 1 | 15.00 |
| 2 $\frac{3}{4}$ x $\frac{3}{4}$ | 6.87 | 5 x 1 | 16.66 |
| 3 x $\frac{3}{4}$ | 7.50 | 5 $\frac{1}{2}$ x 1 | 18.33 |
| 3 $\frac{1}{2}$ x $\frac{3}{4}$ | 8.75 | 6 x 1 | 20.00 |
| 4 x $\frac{3}{4}$ | 10.00 | 6 $\frac{1}{2}$ x 1 | 21.66 |

LENGTH AND NUMBER OF TACKS TO THE POUND.

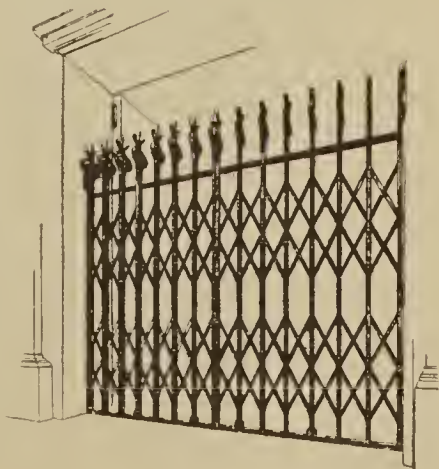
| Title | Length | No. per lb. | Title | Length | No. per lb. |
|---------------------|-------------------|-------------|--------|---------------------|-------------|
| 1 oz. | $\frac{1}{8}$ in. | 16,000 | 10 oz. | 11-16 in. | 1,600 |
| 1 $\frac{1}{2}$ oz. | 3-16 in. | 10,666 | 12 oz. | $\frac{3}{4}$ in. | 1,333 |
| 2 oz. | $\frac{1}{4}$ in. | 8,000 | 14 oz. | 13-16 in. | 1,143 |
| 2 $\frac{1}{2}$ oz. | 5-16 in. | 6,400 | 16 oz. | $\frac{7}{8}$ in. | 1,000 |
| 3 oz. | $\frac{3}{8}$ in. | 5,333 | 18 oz. | 15-16 in. | 888 |
| 4 oz. | 7-16 in. | 4,000 | 20 oz. | 1 in. | 800 |
| 6 oz. | 9-16 in. | 2,666 | 22 oz. | 11-16 in. | 727 |
| 8 oz. | $\frac{5}{8}$ in. | 2,000 | 24 oz. | 1 $\frac{1}{2}$ in. | 666 |



No. 1751. Ornamental folding gate of close steel lattice work for drive-ways. For prices, send size of opening and height required.

No. 1752. Folding store entrance or bank gate; a good protection.

Prices on receipt of measures.



SPOKANE ORNAMENTAL IRON & WIRE WORKS.

No. 1304. Heavy body brass sign, with raised or etched letters; a very bright and attractive business card.

No. 1305. Ornamental cast bronze signs, tablets and memorials; any style and finish made to order, from special designs, full or half chased.

Sketches submitted if desired.

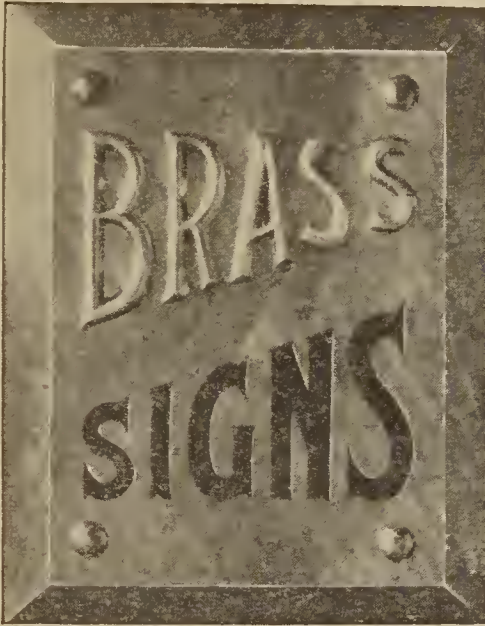
No. 1306. Wrought iron bracket day and night sign; a good, inexpensive sign. Prices, complete for erection, from \$10.00 up. Send size of sign required and inscription for estimates.

AVERAGE NUMBER OF WASHERS IN A KEG OF 200 POUNDS OF EACH STANDARD SIZE.

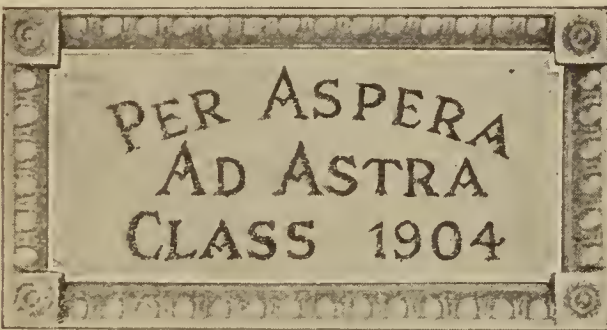
| Diameter. | Size of Hole. | Thickness Wire Gauge. | Size of Bolt. | No. in 200 lbs. |
|----------------|----------------|-----------------------|----------------|-----------------|
| $\frac{1}{8}$ | $\frac{1}{4}$ | No. 18 | 3-16 | 91,000 |
| $\frac{5}{8}$ | 5-16 | No. 16 | $\frac{1}{4}$ | 43,000 |
| $\frac{3}{4}$ | 5-16 | No. 16 | $\frac{1}{4}$ | 27,600 |
| $\frac{7}{8}$ | $\frac{3}{8}$ | No. 16 | 5-16 | 22,500 |
| 1 | 7-16 | No. 14 | $\frac{3}{8}$ | 13,600 |
| $1\frac{1}{4}$ | $\frac{1}{2}$ | No. 14 | 7-16 | 8,600 |
| $1\frac{3}{8}$ | 9-16 | No. 12 | $\frac{1}{2}$ | 5,200 |
| $1\frac{1}{2}$ | $\frac{5}{8}$ | No. 12 | 9-16 | 4,500 |
| $1\frac{3}{4}$ | 11-16 | No. 10 | $\frac{5}{8}$ | 2,600 |
| 2 | 13-16 | No. 10 | $\frac{3}{4}$ | 2,020 |
| $2\frac{1}{4}$ | 15-16 | No. 9 | $\frac{7}{8}$ | 1,720 |
| $2\frac{1}{2}$ | 1 1-16 | No. 9 | 1 | 1,250 |
| $2\frac{3}{4}$ | $1\frac{1}{4}$ | No. 9 | $1\frac{1}{8}$ | 1,040 |
| 3 | $1\frac{3}{8}$ | No. 9 | $1\frac{1}{4}$ | 800 |
| $3\frac{1}{2}$ | $1\frac{1}{2}$ | No. 9 | $1\frac{1}{2}$ | 560 |

TEMPERING STEEL.

| Color. | Purpose. | Tem. | Alloy whose fusing point is same tem. |
|------------------|-----------------------------|-----------|---------------------------------------|
| | | Deg. Fah. | tin. lead. |
| Light straw . . | Turning tools for metal . . | 430 | 1 to $1\frac{3}{4}$ |
| Dark straw . . . | Wood tools, taps and dies | 470 | 1 to $2\frac{1}{2}$ |
| Brown yellow . . | Hatchets, chip'g chisels . | 500 | 1 to $4\frac{3}{4}$ |
| Dark purple . . | Springs, etc., | 550 | 1 to 12 |



No. 1304



No. 1305



No. 1306

No. 1307 and 1308. Artistic iron signs with trade emblems in various finishes, lettering in gold leaf, cast bronze or solid brass.

Prices upon receipt of descriptions.

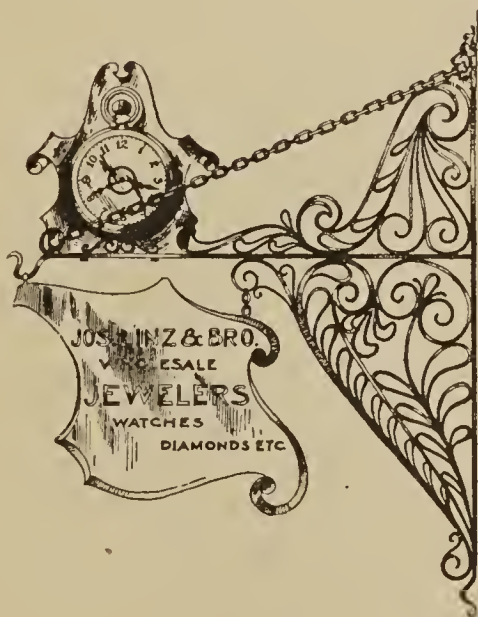
WEIGHT OF BRASS, COPPER, STEEL, PLATE IRON
WROUGHT IRON PIPE, ETC.

| Diameter and Side of Square. | Brass. | | Copper. | |
|------------------------------------|---------------------|----------------------|---------------------|----------------------|
| | Weight of Round. | Weight of Square. | Weight of Round. | Weight of Square. |
| Inches. | Lbs. | Lbs. | Lbs. | Lbs. |
| 1/4..... | .17 | .22 | .19 | .24 |
| 3/8..... | .39 | .50 | .42 | .54 |
| 1/2..... | .70 | .90 | .75 | .96 |
| 5/8..... | 1.10 | 1.40 | 1.17 | 1.50 |
| 3/4..... | 1.59 | 2.02 | 1.69 | 2.16 |
| 7/8..... | 2.16 | 2.75 | 2.31 | 2.94 |
| 1..... | 2.83 | 3.60 | 3.02 | 3.84 |
| 1 1/8..... | 3.58 | 4.56 | 3.82 | 4.86 |
| 1 1/4..... | 4.42 | 5.63 | 4.71 | 6. |
| 1 3/8..... | 5.35 | 6.81 | 5.71 | 7.27 |
| 1 1/2..... | 6.36 | 8.10 | 6.79 | 8.65 |
| 1 5/8..... | 7.47 | 9.51 | 7.94 | 10.15 |
| 1 3/4..... | 8.66 | 11.03 | 9.21 | 11.77 |
| 1 7/8..... | 9.95 | 12.66 | 10.61 | 13.53 |
| 2..... | 11.32 | 14.41 | 12.08 | 15.38 |
| 2 1/8..... | 12.78 | 16.27 | 13.64 | 17.36 |
| 2 1/4..... | 14.32 | 18.24 | 15.29 | 19.47 |
| 2 3/8..... | 15.96 | 20.32 | 17.03 | 21.69 |
| 2 1/2..... | 17.68 | 22.53 | 18.87 | 24.03 |
| 2 5/8..... | 19.50 | 24.83 | 20.81 | 26.50 |
| 2 3/4..... | 21.40 | 27.25 | 22.84 | 29.08 |
| 2 7/8..... | 23.39 | 29.78 | 24.92 | 31.79 |
| 3..... | 25.47 | 32.43 | 27.18 | 34.61 |

(Continued on page 60)



No. 1307



No. 1308

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

No. 1309. Illuminated sign with art glass center, ornamental iron border. You cannot miss this sign, even if you try. Let us submit a sketch for your business entrance.

No. 1310. Wire signs, banners and sign arms, any size and finish.

Write us.

WEIGHT OF BRASS, COPPER, STEEL, PLATE IRON, WROUGHT IRON PIPE, ETC.—Continued.

| | | Steel. | | Lead. | |
|------------------------------|-------|------------------|-------------------|------------------|-------------------|
| Diameter and Side of Square. | | Weight of Round. | Weight of Square. | Weight of Round. | Weight of Square. |
| Inches. | | Lbs. | Lbs. | Lbs. | Lbs. |
| 1/4 | ..... | .17 | .21 | ..... | ..... |
| 3/8 | ..... | .17 | .48 | ..... | ..... |
| 1/2 | ..... | .67 | .85 | ..... | ..... |
| 5/8 | ..... | 1.04 | 1.33 | ..... | ..... |
| 3/4 | ..... | 1.50 | 1.91 | ..... | ..... |
| 1/2 | ..... | 2.05 | 2.61 | ..... | ..... |
| 1 | ..... | 2.67 | 3.40 | 3.87 | 4.95 |
| 1 1/4 | ..... | 3.38 | 4.34 | 4.90 | 6.23 |
| 1 1/4 | ..... | 4.18 | 5.32 | 6.06 | 7.71 |
| 1 3/8 | ..... | 5.06 | 6.44 | 7.33 | 9.33 |
| 1 1/2 | ..... | 6.02 | 7.67 | 8.72 | 11.11 |
| 1 5/8 | ..... | 7.07 | 9. | 10.24 | 13.04 |
| 1 3/4 | ..... | 8.20 | 10.14 | 11.87 | 15.12 |
| 1 7/8 | ..... | 9.41 | 11.98 | 13.63 | 17.36 |
| 2 | ..... | 10.71 | 13.63 | 15.51 | 19.75 |
| 2 1/4 | ..... | 12.05 | 15.80 | 17.51 | 22.29 |
| 2 1/2 | ..... | 13.51 | 17.20 | 19.63 | 25. |
| 2 3/4 | ..... | 15.05 | 19.17 | 21.80 | 27.80 |
| 2 1/2 | ..... | 16.68 | 21.21 | 24.24 | 30.86 |
| 2 5/8 | ..... | 18.39 | 23.41 | 26.72 | 34.02 |
| 2 3/4 | ..... | 20.18 | 25.70 | 29.33 | 37.34 |
| 2 7/8 | ..... | 22.06 | 28.10 | 32.05 | 40.81 |
| 3 | ..... | 24.23 | 30.60 | 34.90 | 44.44 |

(Continued on page 62)



No. 1309



No. 1310

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

No. 1311. Wrought iron bracket with antique burned wood sign, any style lettering. Give size and inscription for estimates.

No. 413. Ticket office guard rail, 4 feet 6 inches long, 3 feet high, 2½ inch polished brass tubing. Per design, \$48.00. With acorn ends, only \$40.00, complete for erection.

No. 414. Polished brass floor rail with gate, 2 inch brass tubing, \$5.00 per lineal foot; gate, \$6.00, and measured in the rail. We use expert brass fitters and finishers; that's why our brass work looks so different than some others.

WEIGHT OF BRASS, COPPER, STEEL, PLATE IRON, WROUGHT IRON PIPE, ETC.—Continued.

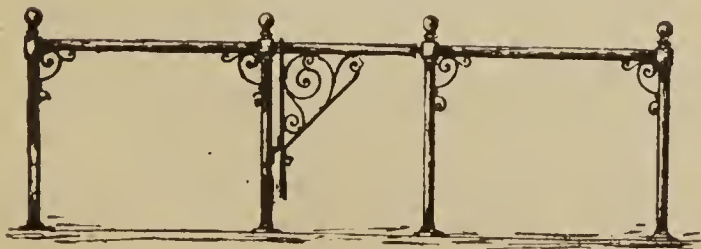
| Plate Iron. | | Flat Cast Iron. | | Wrought Iron Pipe. | |
|--------------------------------|-------|-----------------|---------|----------------------------|------------------|
| Thickness in parts of an inch. | Iron. | Size. | Weight. | Interior Diameter, Inches. | Weight per Foot. |
| | | Inches. | Lbs. | | |
| 1-16 | 2.5 | ¼ | 9.37 | 1½ | .24 |
| ⅛ | 5.0 | ⅜ | 14.06 | 1¾ | .42 |
| 3-16 | 7.5 | ½ | 18.75 | 2 | .56 |
| ¼ | 10.0 | 5⁄8 | 23.43 | 2½ | .85 |
| 5-16 | 12.5 | ¾ | 28.12 | 3 | 1.13 |
| ⅜ | 15.0 | 7⁄8 | 32.18 | 3½ | 1.67 |
| 7-16 | 17.5 | 1 | 37.50 | 4 | 2.26 |
| ½ | 20.0 | 1¼ | 42.18 | 4½ | 2.69 |
| ⅝ | 25.0 | 1½ | 46.87 | 5 | 3.66 |
| ¾ | 30.0 | 1¾ | 51.56 | 5½ | 5.77 |
| 7⁄8 | 40.0 | 1½ | 56.25 | 6 | 7.55 |
| 1 | ..... | 1¾ | 60.93 | 6½ | 9.05 |
| ..... | ..... | 1¾ | 65.62 | 7 | 10.73 |
| ..... | ..... | 1¾ | 70.31 | 7½ | 12.49 |
| ..... | ..... | 2 | 75. | 8 | 14.56 |
| ..... | ..... | ..... | ..... | ..... | 18.76 |
| ..... | ..... | ..... | ..... | ..... | 23. |
| ..... | ..... | ..... | ..... | ..... | 28. |



No. 1311



No. 413



No. 414

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

No. 415. Polished brass foot rail, $1\frac{3}{4}$ inch tubing, cast brass standards, \$2.00 each; acorns, \$1.40; rail, 80c per foot.

No. 416. Choir or balcony rail, in polished brass or iron; standards, 6 feet apart; $1\frac{1}{2}$ inch tubing, 24 inches high, \$2.40 per lineal foot; $1\frac{1}{4}$ inch wrought iron pipe, \$1.00 per lineal foot.

No. 417 and 418. Window bars in iron, brass or nickel. Price according to size and finish.

No. 419. Polished brass bracket foot rail of 2-inch tubing, brackets 6 feet apart, \$1.80 per lineal foot. In $1\frac{1}{4}$ -inch wrought iron pipe with wrought iron brackets, \$1.20 per lineal foot. We also furnish jointed brackets for bar foot rails.

Table of Horse Power which may be transmitted by open Single Belts to Pulleys running 100 Revolutions per minute. The Diameters of the Driving and Driven Pulley being equal.

The Horse Power of Double Belts is 10-7 of that given in the Table.

| Diameter of Pulley. | Width of Belt in Inches | | | | | | | |
|------------------------|-------------------------|------|------|------|------|------|------|------|
| | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 | 6 |
| Inches. | H P | H P | H P | H P | H P | H P | H P | H P |
| 6..... | .44 | .54 | .65 | .76 | .87 | .98 | 1.09 | 1.31 |
| 6½..... | .47 | .59 | .71 | .83 | .95 | 1.07 | 1.19 | 1.42 |
| 7..... | .51 | .64 | .76 | .89 | 1.01 | 1.14 | 1.27 | 1.53 |
| 7½..... | .55 | .68 | .82 | .95 | 1.09 | 1.23 | 1.36 | 1.64 |
| 8..... | .58 | .73 | .87 | 1.02 | 1.16 | 1.31 | 1.45 | 1.75 |
| 8½..... | .62 | .77 | .93 | 1.08 | 1.24 | 1.39 | 1.55 | 1.86 |
| 9..... | .65 | .82 | .98 | 1.15 | 1.31 | 1.48 | 1.64 | 1.97 |
| 9½..... | .69 | .86 | 1.04 | 1.21 | 1.39 | 1.56 | 1.74 | 2.08 |
| 10..... | .73 | .91 | 1.09 | 1.27 | 1.45 | 1.63 | 1.81 | 2.18 |
| 11..... | .80 | 1. | 1.2 | 1.4 | 1.6 | 1.8 | 2. | 2.4 |
| 12..... | .87 | 1.09 | 1.31 | 1.53 | 1.75 | 1.97 | 2.18 | 2.62 |
| 13..... | .95 | 1.18 | 1.42 | 1.65 | 1.89 | 2.12 | 2.36 | 2.83 |
| 14..... | 1.02 | 1.27 | 1.52 | 1.77 | 2.02 | 2.27 | 2.53 | 3.05 |
| 15..... | 1.09 | 1.36 | 1.64 | 1.91 | 2.19 | 2.46 | 2.73 | 3.29 |
| 16..... | 1.16 | 1.45 | 1.74 | 2.03 | 2.32 | 2.61 | 2.91 | 3.48 |
| 17..... | 1.24 | 1.55 | 1.85 | 2.16 | 2.47 | 2.78 | 3.09 | 3.70 |
| 18..... | 1.31 | 1.64 | 1.96 | 2.29 | 2.62 | 2.95 | 3.27 | 3.92 |
| 19..... | 1.39 | 1.73 | 2.07 | 2.42 | 2.76 | 3.11 | 3.45 | 4.14 |
| 20..... | 1.45 | 1.82 | 2.18 | 2.55 | 2.91 | 3.27 | 3.64 | 4.36 |
| 21..... | 1.52 | 1.91 | 2.29 | 2.67 | 3.05 | 3.44 | 3.82 | 4.58 |
| 22..... | 1.6 | 2. | 2.4 | 2.8 | 3.2 | 3.6 | 4. | 4.8 |
| 23..... | 1.67 | 2.09 | 2.51 | 2.93 | 3.35 | 3.75 | 4.18 | 5.02 |

(Continued on page 66)



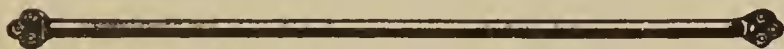
No. 415



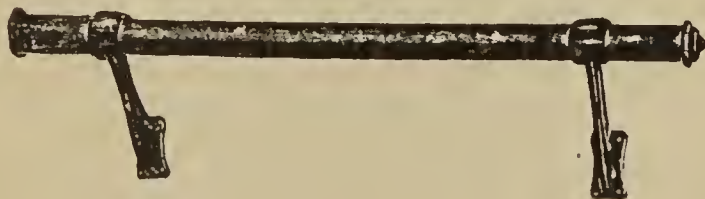
No. 416



No. 417



No. 418



No. 419

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

The following pages contain a few designs of substantial wrought iron and wire entrance gates for cemeteries, private grounds, residences and vaults. Special designs will be cheerfully submitted upon information to suit.

No. 1106. Double drive and walk gates, with genuine gold leaf lettered sign, can also be furnished with solid iron posts if desired. Double gate, 10 by 6 feet, \$180.00. Single, 3 by 6 feet, \$40.00. Double gates, 12 by 7 feet, \$200.00. Single, 3½ by 7 feet, \$44.00. Double gate, 14 by 7 feet, \$240.00. Single, 4 by 7 feet, \$50.00 each.

No. 1107. Extra heavy No. 7 hard crimped wire gate, in strong channel frame, 3-inch pipe posts with heavy anchors and genuine gold leaf lettered sign. 8 feet by 3 feet 6 inches, \$30.00; 10 feet by 4 feet, \$90.00; 12 by 4 feet, \$100.00; 14 by 4 feet, \$110.00. Without arch and sign, \$40.00 less. Gates only to hang to wood posts, \$50.00 less.

No. 1108. Double wrought iron gate, ¾-inch square bars. 8 by 4 feet, \$80.00; 10 by 5 feet, \$90.00; 12 by 6 feet, \$100.00. All complete for erection.

TABLE OF HORSE POWER OF SINGLE BELTS—Continued.

| Diameter of Pulley. | Width of Belt in Inches | | | | | | | |
|------------------------|-------------------------|------|------|------|------|------|------|------|
| | 4 | 5 | 6 | 8 | 10 | 12 | 14 | 16 |
| Inches. | H P | H P | H P | H P | H P | H P | H P | H P |
| 24..... | 3.5 | 4.4 | 5.2 | 7. | 8.7 | 10.5 | 12.2 | 14. |
| 25..... | 3.6 | 4.5 | 5.5 | 7.3 | 9.1 | 10.9 | 12.7 | 14.5 |
| 26..... | 3.8 | 4.7 | 5.7 | 7.6 | 9.5 | 11.3 | 13.2 | 15.1 |
| 27..... | 3.9 | 4.9 | 5.9 | 7.8 | 9.8 | 11.8 | 13.7 | 15.6 |
| 28..... | 4.1 | 5.1 | 6.1 | 8.1 | 10.2 | 12.2 | 14.3 | 16.3 |
| 29..... | 4.2 | 5.3 | 6.3 | 8.4 | 10.5 | 12.6 | 14.8 | 16.9 |
| 30..... | 4.4 | 5.4 | 6.6 | 8.7 | 10.9 | 13.1 | 15.3 | 17.4 |
| 31..... | 4.5 | 5.6 | 6.8 | 9. | 11.3 | 13.5 | 15.8 | 18. |
| 32..... | 4.7 | 5.8 | 7. | 9.3 | 11.6 | 14. | 16.3 | 18.6 |
| 33..... | 4.8 | 6. | 7.2 | 9.6 | 12. | 14.4 | 16.8 | 19.2 |
| 34..... | 4.9 | 6.2 | 7.4 | 9.9 | 12.4 | 14.8 | 17.8 | 19.8 |
| 35..... | 5.1 | 6.4 | 7.6 | 10.2 | 12.7 | 15.3 | 17.9 | 20.4 |
| 36..... | 5.2 | 6.5 | 7.8 | 10.5 | 13.1 | 15.7 | 18.3 | 20.9 |
| 37..... | 5.4 | 6.7 | 8.1 | 10.8 | 13.5 | 16.2 | 18.9 | 21.5 |
| 38..... | 5.5 | 6.9 | 8.3 | 11. | 13.8 | 16.6 | 19.3 | 22.1 |
| 39..... | 5.7 | 7.1 | 8.5 | 11.3 | 14.2 | 17. | 19.9 | 22.7 |
| 40..... | 5.8 | 7.3 | 8.7 | 11.6 | 14.6 | 17.5 | 20.4 | 23.3 |
| 42..... | 6.1 | 7.6 | 9.2 | 12.2 | 15.3 | 18.2 | 21.4 | 24.3 |
| 44..... | 6.4 | 8. | 9.6 | 12.8 | 16. | 19.2 | 22.4 | 25.6 |
| 46..... | 6.7 | 8.4 | 10. | 13.4 | 16. | 20.1 | 23.4 | 26.8 |
| 48..... | 7. | 8.8 | 10.4 | 14. | 17.4 | 21. | 24.4 | 28. |
| 50..... | 7.2 | 9. | 10.9 | 14.6 | 18.2 | 21.8 | 25.4 | 29. |
| 54..... | 7.8 | 9.8 | 11.8 | 15.6 | 19.6 | 23.6 | 26.4 | 31.2 |
| 60..... | 8.8 | 10.8 | 13.1 | 17.4 | 21.8 | 26.2 | 30.6 | 34.8 |
| 66..... | 9.6 | 12. | 14.4 | 19.2 | 24. | 28.8 | 33.6 | 38.4 |
| 72..... | 10.4 | 13. | 15.6 | 21. | 26.2 | 31.4 | 36.6 | 41.8 |
| 78..... | 11.4 | 14.2 | 17. | 22.6 | 28.4 | 34. | 39.8 | 45.4 |
| 84..... | 12.2 | 15.2 | 19.4 | 24.4 | 30.6 | 36.4 | 42.8 | 48.6 |



No. 1106



No. 1107



No. 1108

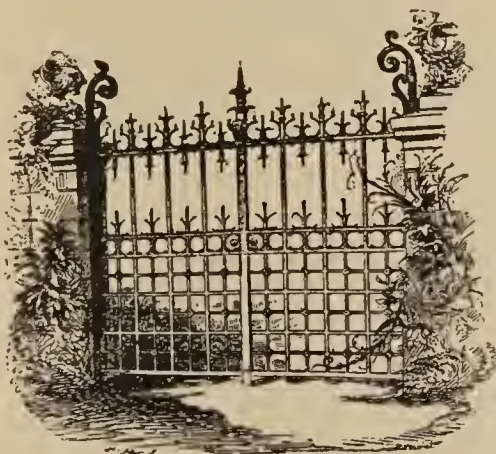
SPOKANE ORNAMENTAL IRON & WIRE WORKS.

No. 1109. Extra heavy wrought iron gates, 1 inch square bars.
8 by 6 feet, \$100.00 per pair; 10 by 7 feet, \$120.00 per pair;
12 by 7 feet 6 inches, \$160.00 per pair, all complete for erection.

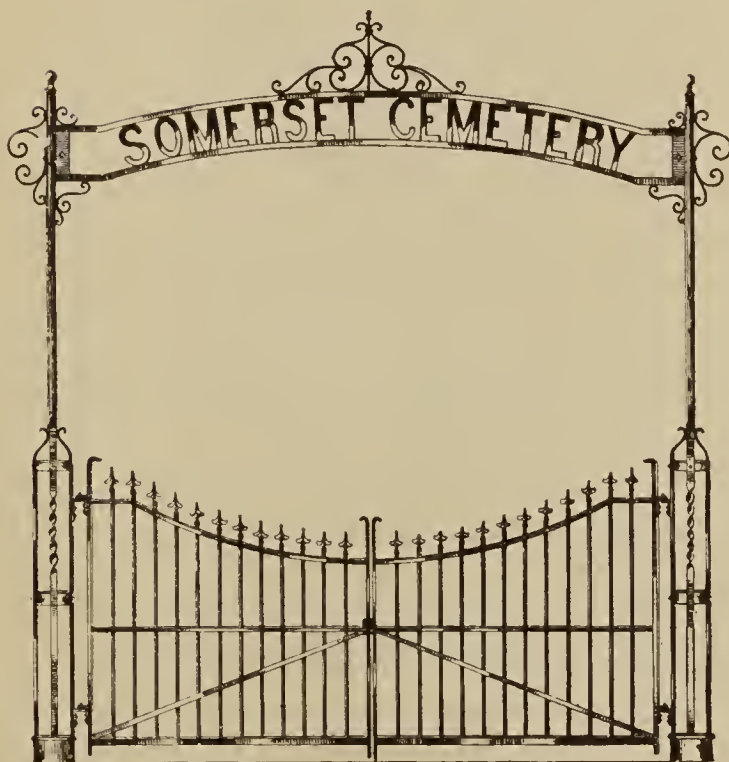
No. 1110. A simple yet neat cemetery entrance, with wrought iron open letters, finished in genuine gold leaf and ½ inch steel pickets. 8 by 4 feet, \$100.00 each; 10 by 5 feet, \$120.00; 12 by 6 feet, \$130.00; 14 by 6 feet 6 inches, \$150.00. Without arch and sign, \$30.00 less. For stone or wood posts, \$36 less.

AVERAGE WEIGHT OF SQUARE HEAD MACHINE BOLTS Per 1000.

| Length. | Diameter. | | | | | | | |
|---------------------|-----------|-------|-------|-------|-------|-------|-------|-------|
| | 5-16 | ¾ | 7-16 | ½ | 5/8 | ¾ | 7/8 | 1 |
| 1½..... | 6.8 | 10.6 | 15.0 | 23.9 | 40.5 | 70.0 | ..... | ..... |
| 1¾..... | 7.3 | 11.3 | 16.1 | 25.1 | 42.7 | 73.1 | ..... | ..... |
| 2..... | 7.8 | 12.0 | 17.2 | 26.3 | 44.8 | 76.2 | ..... | ..... |
| 2¼..... | 8.4 | 12.6 | 18.2 | 27.7 | 47.0 | 79.3 | ..... | ..... |
| 2½..... | 8.9 | 13.3 | 19.2 | 29.0 | 49.2 | 82.4 | 120.5 | ..... |
| 2¾..... | 9.5 | 14.0 | 20.2 | 30.4 | 51.4 | 85.5 | 124.7 | ..... |
| 3..... | 10.0 | 14.7 | 21.2 | 31.8 | 53.5 | 88.7 | 128.9 | 185.0 |
| 3½..... | 11.1 | 16.0 | 23.2 | 34.7 | 57.9 | 95.0 | 137.4 | 196.0 |
| 4..... | 12.2 | 17.4 | 25.2 | 37.5 | 62.3 | 101.2 | 145.8 | 207.0 |
| 4½..... | 13.2 | 18.7 | 27.2 | 40.2 | 66.7 | 107.5 | 159.2 | 218.0 |
| 5..... | 14.3 | 20.0 | 29.1 | 43.0 | 71.0 | 113.7 | 167.7 | 229.0 |
| 5½..... | 15.4 | 21.4 | 31.2 | 45.7 | 75.4 | 120.0 | 176.1 | 240.0 |
| 6..... | 16.5 | 22.8 | 33.1 | 48.4 | 79.8 | 126.2 | 184.6 | 251.0 |
| 6½..... | 17.6 | 24.1 | 35.1 | 51.2 | 84.1 | 132.5 | 193.0 | 262.0 |
| 7..... | 18.6 | 25.9 | 37.1 | 54.0 | 88.5 | 138.7 | 201.4 | 273.0 |
| 7½..... | 19.7 | 27.7 | 39.1 | 56.7 | 92.9 | 145.0 | 209.9 | 284.0 |
| 8..... | 20.8 | 29.5 | 41.0 | 59.4 | 97.2 | 151.2 | 218.3 | 295.0 |
| 9..... | ..... | 33.1 | 45.0 | 64.8 | 106.0 | 163.7 | 240.2 | 317.0 |
| 10..... | ..... | 36.7 | 49.0 | 70.3 | 114.7 | 176.2 | 257.1 | 339.0 |
| 11..... | ..... | 40.4 | 53.0 | 75.8 | 123.5 | 188.7 | 273.9 | 360.0 |
| 12..... | ..... | 44.0 | 57.0 | 81.3 | 132.2 | 201.0 | 290.0 | 382.0 |
| 13..... | ..... | ..... | ..... | 86.7 | 140.7 | 213.4 | 307.7 | 404.0 |
| 14..... | ..... | ..... | ..... | 92.2 | 149.2 | 225.9 | 324.5 | 426.0 |
| 15..... | ..... | ..... | ..... | 97.7 | 157.6 | 238.3 | 341.0 | 448.0 |
| 16..... | ..... | ..... | ..... | 103.1 | 166.1 | 250.8 | 358.3 | 470.0 |
| 17..... | ..... | ..... | ..... | 108.6 | 174.6 | 263.2 | 375.2 | 492.0 |
| 18..... | ..... | ..... | ..... | 114.1 | 183.1 | 275.6 | 392.0 | 514.0 |
| 19..... | ..... | ..... | ..... | 119.5 | 191.5 | 288.1 | 408.9 | 536.0 |
| 20..... | ..... | ..... | ..... | 125.0 | 200.0 | 300.5 | 425.8 | 558.0 |
| Per inch additional | 2.2 | 3.6 | 4.0 | 5.5 | 8.5 | 12.4 | 16.9 | 22.0 |



No. 1109



No. 1110

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

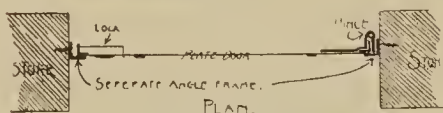
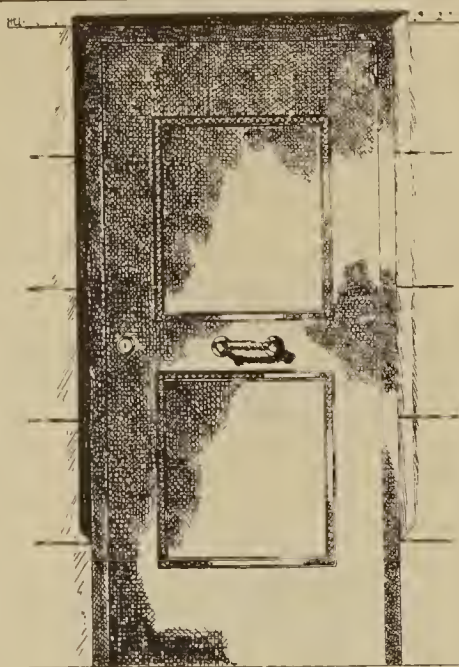
Vault gates in iron, bronze or steel, double or single. Designs submitted.

No. 1111. Heavy sheet steel door well reinforced, with Yale lock, 3 by 7 feet, \$50.00.

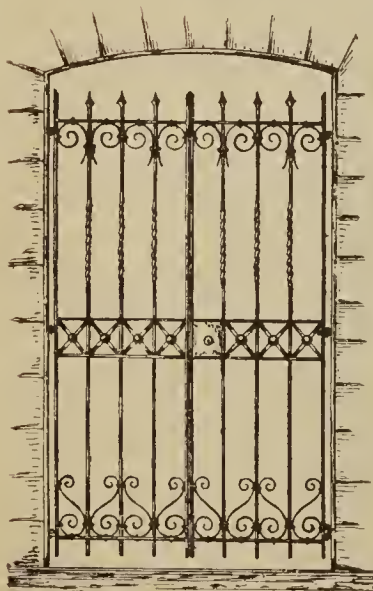
No. 1112 and 1113. Double open picket gates, $\frac{5}{8}$ inch square bars, for 4 feet 6 inches by 8 feet opening, \$72.00 per pair.

WEIGHT OF 100 COACH OR LAG SCREWS.

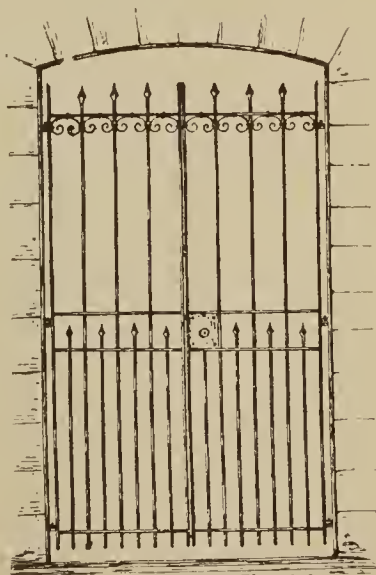
| Length, Inches. | Diameter. | | | | |
|-----------------------|---------------|-------|---------------|---------------|---------------|
| | $\frac{3}{8}$ | 7-16 | $\frac{1}{2}$ | $\frac{5}{8}$ | $\frac{3}{4}$ |
| 1 $\frac{1}{8}$ | 6.88 | ..... | ..... | ..... | ..... |
| 1 $\frac{3}{4}$ | 7.50 | 11.75 | 16.88 | ..... | ..... |
| 2..... | 8.25 | 12.62 | 17.18 | ..... | ..... |
| 2 $\frac{1}{4}$ | 9.25 | 12.88 | 18.07 | ..... | ..... |
| 2 $\frac{1}{2}$ | 9.62 | 13.28 | 19.18 | ..... | ..... |
| 3..... | 10.82 | 16.62 | 22. | 34.07 | ..... |
| 3 $\frac{1}{2}$ | 11.50 | 18.18 | 24. | 35.88 | ..... |
| 4..... | 13.31 | 18.88 | 26.82 | 39.25 | 64. |
| 4 $\frac{1}{2}$ | 14.82 | 19.50 | 28.25 | 42.62 | 67.88 |
| 5..... | 16.50 | 21.25 | 30.37 | 47.75 | 71.37 |
| 5 $\frac{1}{2}$ | 17.37 | 23.56 | 33.88 | 51.62 | 79.37 |
| 6..... | 18.82 | 25.31 | 35.37 | 55.12 | 86.62 |
| 7..... | ..... | ..... | 38.94 | 61.88 | 92.75 |
| 8..... | ..... | ..... | 44.37 | 68.75 | 97.50 |
| 9..... | ..... | ..... | ..... | 77. | 103.75 |
| 10..... | ..... | ..... | ..... | 90. | 124.75 |



No. 1111



No. 1112



No. 1113

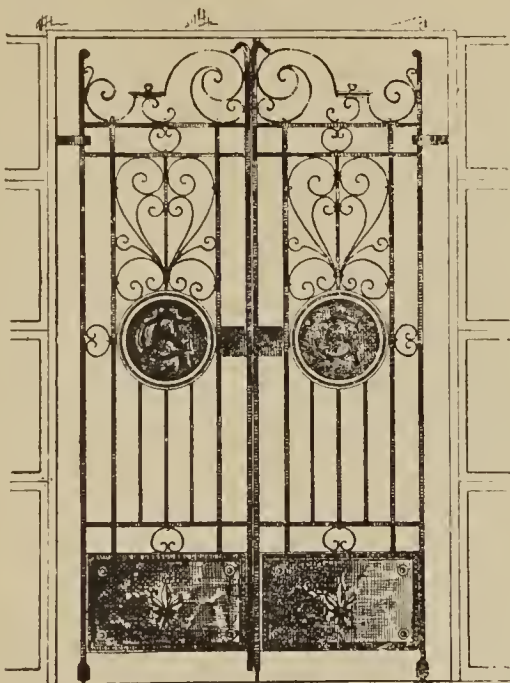
SPOKANE ORNAMENTAL IRON & WIRE WORKS.

No. 1114. Ornamental gate with monogram for private residences, banks, etc., in iron or bronze. Size, 5 feet 6 inches by 8 feet, \$120.00, with bronze monogram in center of iron gate, \$160.00.

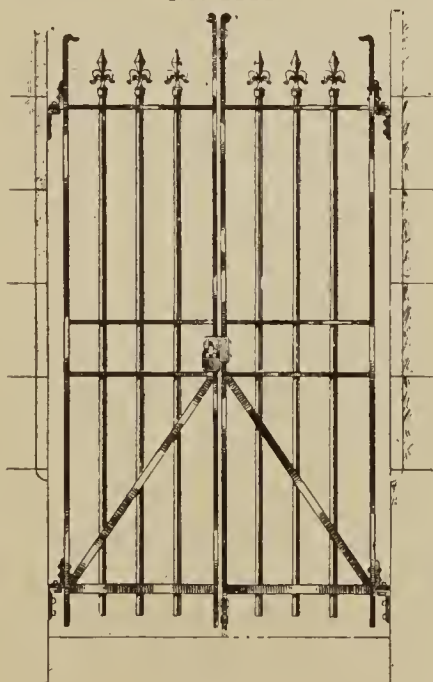
No. 1115. Plain but heavy entrance gate, with padlock. 4 by 7 feet, \$60.00.

STRAIGHT LINK COIL CHAIN.

| Size. | Common Proof, Lbs. | BB Crane, Lbs. | BBB Crane, Lbs. | Av. Wt. per Ft., Lbs. |
|-----------------|--------------------------|----------------------|-----------------------|-----------------------------|
| 3-16 inch..... | 700 | 770 | 900 | .5 |
| ¼ inch..... | 1,200 | 1,320 | 1,500 | .75 |
| 5-16 inch..... | 2,500 | 2,750 | 3,200 | 1.10 |
| ⅜ inch..... | 3,500 | 3,850 | 4,425 | 1.55 |
| 7-16 inch..... | 4,800 | 5,280 | 6,100 | 2.00 |
| ½ inch..... | 6,200 | 6,820 | 7,850 | 2.65 |
| 9-16 inch..... | 7,800 | 8,580 | 9,870 | 3.25 |
| ⅝ inch..... | 9,600 | 10,560 | 12,150 | 4.2 |
| 11-16 inch..... | 11,500 | 12,650 | 14,550 | 5.0 |
| ¾ inch..... | 13,800 | 15,180 | 17,475 | 5.9 |
| 13-16 inch..... | 16,200 | 17,820 | 20,500 | 7.0 |
| ⅞ inch..... | 18,800 | 20,680 | 23,780 | 8.0 |
| 15-16 inch..... | 21,500 | 23,650 | 27,200 | 9.0 |
| 1 inch..... | 24,600 | 27,100 | 31,200 | 10.0 |
| 1 ¼ inch..... | 29,500 | 32,450 | 37,300 | 12.5 |
| 1 ½ inch..... | 36,500 | 40,150 | 46,175 | 16.0 |
| 1 ¾ inch..... | 44,000 | 48,400 | 55,660 | 19.0 |
| 1 ½ inch..... | 52,500 | 57,750 | 66,400 | 21.0 |
| 1 ⅞ inch..... | 61,700 | 67,870 | 78,050 | 25.0 |



No. 1114



No. 1115

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

After many years of experience in the fence business we are warranted in saying that it is only a man's folly to use anything than iron in the construction of fences. We have endeavored to select a number of choice patterns, made entirely of wrought steel pickets and wire and at a scale of prices which will substantiate the above fully, taking lasting qualities into consideration.

When writing for prices, give number of fence, length, height, size and number of gates and slopes, if any; also location of gates, when ordering, and state whether plain or ornamental top is desired. All fences are painted black unless otherwise ordered. Our standard post No. 1175 or 1177 are included in the price, but heavy cast iron post No. 1176 are \$4.00 each, net, extra. See list on page 91. All prices are made on 30 and 36 inches high for the fence proper, and when erected will stand 34 or 40 inches high. Special heights to order. All of our fences are made in sections, complete for erection, except No. 1164, which is sent in bales with posts and rails. But all of our fences can easily be erected by any one with little skill.

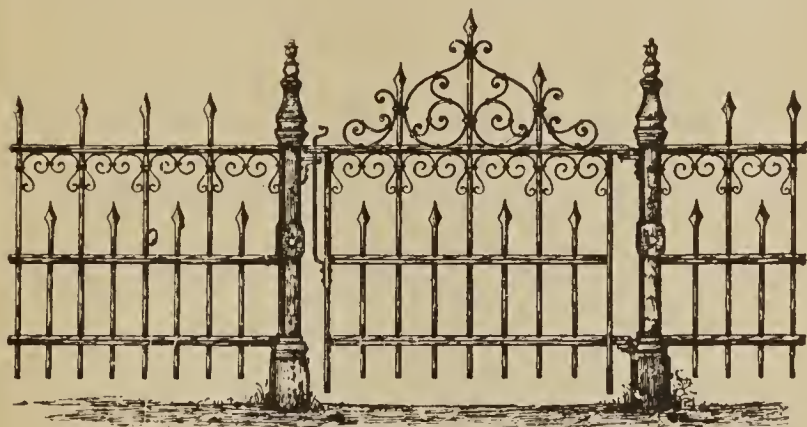
No. 1151. Wrought steel throughout; 30 inches high, 7-16 inch square pickets, \$1.20 per lineal foot; 36 inches high, $\frac{1}{2}$ inch square pickets, \$1.80 per lineal foot; 3-foot gate, as shown, \$12.00 each; with plain top, \$9.00 each; 8 foot double gate, double in price; larger sizes, add price of fence. Gates without fence, \$4.00 more than list. Cast iron posts, \$4.00 net extra.

No. 1152. Wrought steel picket fence, with ornamental drop forged steel points, $\frac{1}{2}$ -inch square pickets. 30 inches high, \$2.00 per lineal foot; 36 inches high, \$2.40 per lineal foot; 3-foot single gates, as shown, \$12.00 each, with ornamental top, \$16.00 each. 8-foot double gates, double price of single gates; larger than that, add price of fence per foot to same. Gates without fence, \$4.00 extra.

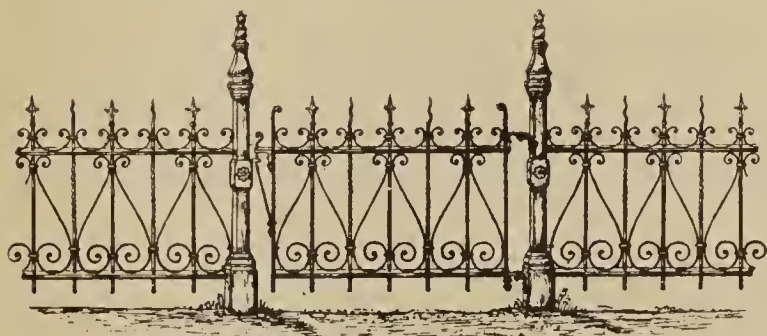
No. 1153. Round steel picket fence, with malleable iron points; a good fence for general purposes. 7-16 inch round pickets, 30 inches high, \$1.40 per lineal foot; 7-16 inch round pickets, 36 inches high, \$1.60 per lineal foot; 3-foot single gates, as shown, \$12.00 each, plain tops, \$9.00; 8-foot double gates, double price of single, and larger gates, price of fence per foot additional. Gates without fence order, \$4.00 additional each.

WEIGHT OF GRINDSTONES.

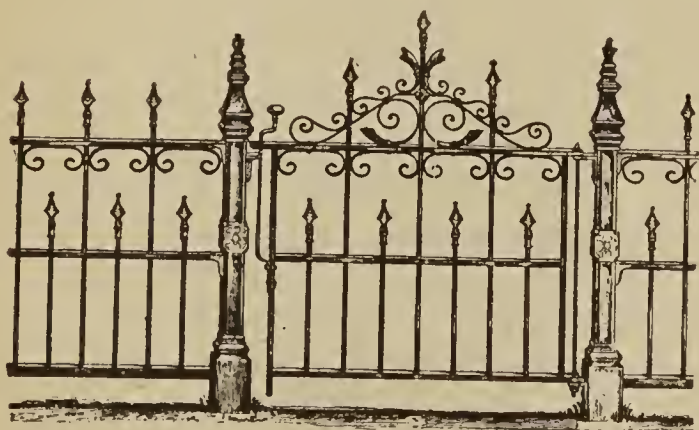
Rule.—Square the diameter (in inches); multiply by thickness (in inches); then by the decimal .06363; the product will be the weight of the stone in lbs.



No. 1151



No. 1152



No. 1153

No. 1154. $\frac{1}{2}$ -inch square bars, 4 inches on center, 30 inches high, \$1.60 per lineal foot; 36 inches high, \$1.80 per lineal foot. Gates the same prices as previous.

No. 1155. 7-16 inch round steel pickets; 30 inches high, \$1.00 per lineal foot, 2 rails; 36 inches high, \$1.20 per lineal foot, 3 rails; 3-foot single plain gates, \$8.00 each; ornamental, \$10.00 each; 8-foot double gates, double of single price; larger double gates, add price of fence per lineal foot to same.

No. 1156. Heavy square picket fence, with cast iron points. $\frac{5}{8}$ inch square bars, set on diamond, 4 inches apart. 3 feet high, \$2.40 per lineal foot. Special heights to order. 3-foot single plain gate, \$16.00; ornamental top, \$20.00 each; 8-foot double gates, double price of single; larger ones add price of fence per lineal foot.

WORKSHOP RECIPES.

Parting Sand.

Burnt sand scraped from the surface of castings.

Loam.

Mixture of brick, clay and old foundry sand.

Blackening for Moulds.

Charcoal powder; or, in some instances, fine coal-dust.

Black Wash.

Charcoal, plumbago, and size.

Mixture for Welding Steel.

1 sal-ammoniac.

10 borax.

Pounded together, and fused until clear, when it is poured out, and, after cooling, reduced to powder.

Rust-Joint Cement. (Quickly Setting.)

1 sal-ammoniac in powder (by weight).

2 flour of sulphur.

80 iron borings made to a paste with water.

Rust-Joint (Slowly Setting).

2 sal-ammoniac.

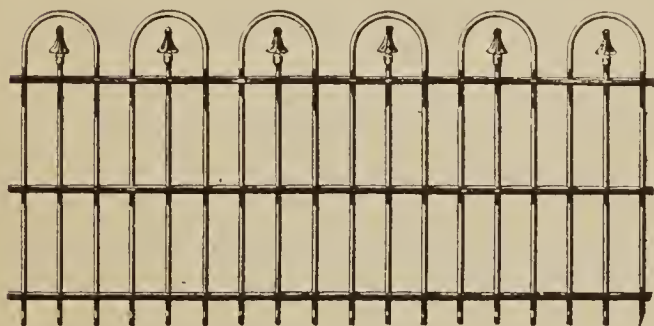
1 flour of sulphur.

200 iron borings.

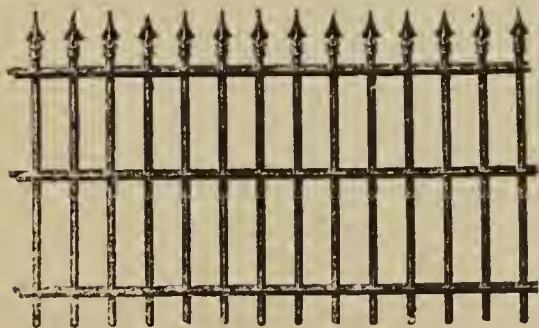
The latter cement is the best if the joint is not required for immediate use.



No. 1154



No. 1155



No. 1156

No. 1157. $\frac{5}{8}$ inch by $\frac{1}{4}$ inch pickets, forged points. 30 inches high, \$1.60 per lineal foot; 36 inches high, \$1.80 per foot. 3-foot plain single gates, \$9.00; ornamental top, \$12.00 each. Double 8-foot gates, double price of single gates; for larger sizes, add price of fence per lineal foot.

No. 1158. $\frac{1}{2}$ inch square pickets, 4 inches on center, $1\frac{1}{4}$ inch channel rails. 30 inches high, \$1.20 per lineal foot; 36 inches high, \$1.40 per lineal foot. Prices on gates are the same as on No. 1157.

No. 1159. Same prices as No. 1157.

No. 1160. Same prices as No. 1158.

No. 1161. $\frac{1}{2}$ inch round pickets, 1 inch channel cross-bars. Same prices as No. 1158.

WORKSHOP RECIPES.

Red-Lead Cement for Face-Joints.

- 1 of white lead.
- 1 of red lead, mixed with linseed oil to the proper consistency.

Case-Hardening.

Place horn, hoof, bone-dust, or shreds of leather, together with the article to be case-hardened, in an iron box subject to a blood-red heat, then immerse the article in cold water.

Case-Hardening with Prussiate of Potash.

Heat the article after polishing to a bright red, rub the surface over with prussiate of potash; allow it to cool to dull red, and immerse it in water.

Case-Hardening Mixtures.

- 3 prussiate of potash.
- 1 sal-ammoniac.
- or,
- 1 prussiate of potash.
- 2 sal-ammoniac.
- 2 bone-dust.

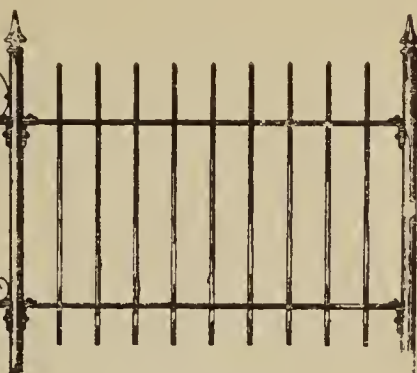
Glue to Resist Moisture.

1 pound of gule melted in 2 quarts of skim-milk.

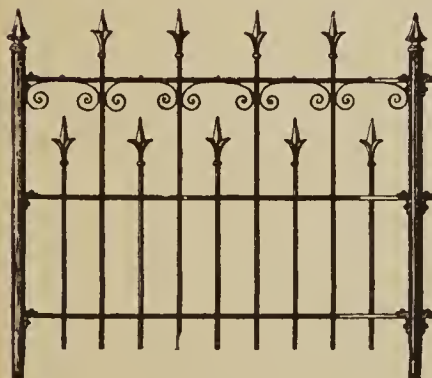
SPOKANE ORNAMENTAL IRON & WIRE WORKS.



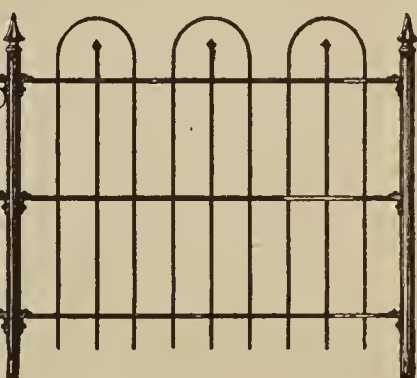
No. 1157



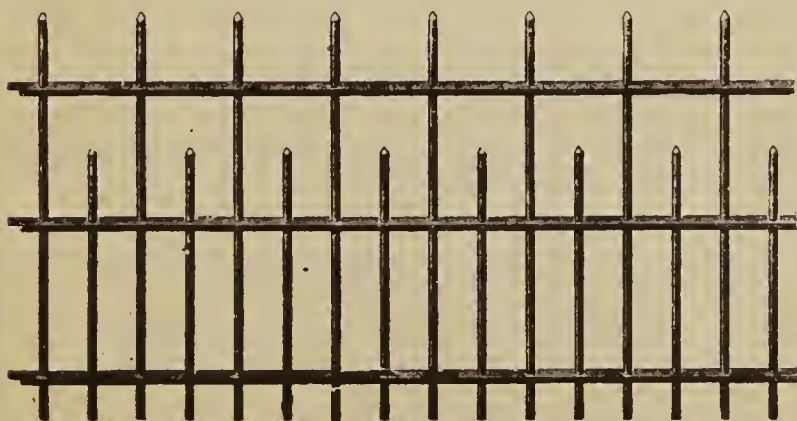
No. 1158



No. 1159



No. 1160



No. 1161

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

No. 1162. Ideal park fence, unclimbable, 4 feet high, 1 by 3-16 inch steel pickets, 4 inches apart, riveted to 1 1/4 inch steel angles, with round, bevel or pointed tops, inclusive our standard posts, \$1.60 per lineal foot; 3-foot single gates, \$6.00 each; 8-foot double gates, \$12.00 each. Larger gates, add price of fence per lineal foot.

No. 1163. Our standard fence, for general purposes, has been on the eastern market for 25 years, and is today the universal fence. The framing is made of 1-inch channel and the web of No. 7 hard crimped wire, and first class workmanship. Price, 30 inches high, \$1.00 per lineal foot; 36 inches high, \$1.20 per lineal foot. Single 3-foot gates, per cut, \$8.00 each; double, 8-foot gates, \$16.00 each. For larger sizes, add price of fence per lineal foot.

No. 1164. Has our standard fence posts and 1-inch steel tee-top and bottom rail and the American lawn fence for filling, which is made of No. 12 galvanized wire cable strands, and the same size web; the most fence for the money. 36 inches high, 72c per lineal foot, all complete for erection; 3-foot single gates, \$6.00 each, plain top; 8-foot double gates, \$12.00 each, plain top. Ornamental gates, \$1.00 and \$2.00 additional.

WORKSHOP RECIPES.

Marine Glue.

1 of India rubber, 12 of mineral naphtha or coal tar. Heat gently, mix, and add 20 of powdered shellac. Pour out on a slab to cool. When used, to be heated to about 250 degrees.

Glue Cement to Resist Moisture.

1 glue, 1 black rosin, 1/4 red ochre. Mix with least possible quantity of water.

Or, 4 of glue, or 1 oxide of iron and 1 of boiled oil (by weight).

To Remove Rust from Steel.

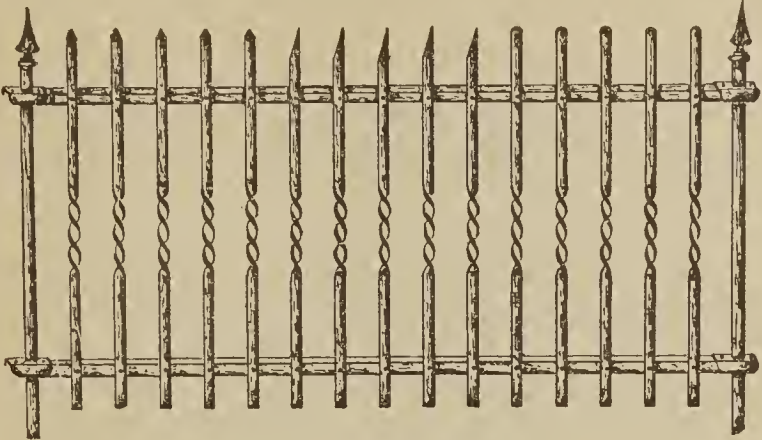
Steel which has been rusted can be cleaned by brushing with a paste compound of 1/2 ounce cyanide potassium, 1/2 ounce castile soap, 1 ounce whiting, and water sufficient to form a paste. The steel should be washed with a solution of 1/2 ounce cyanide potassium in 2 ounces of water.

To Preserve Steel from Rust.

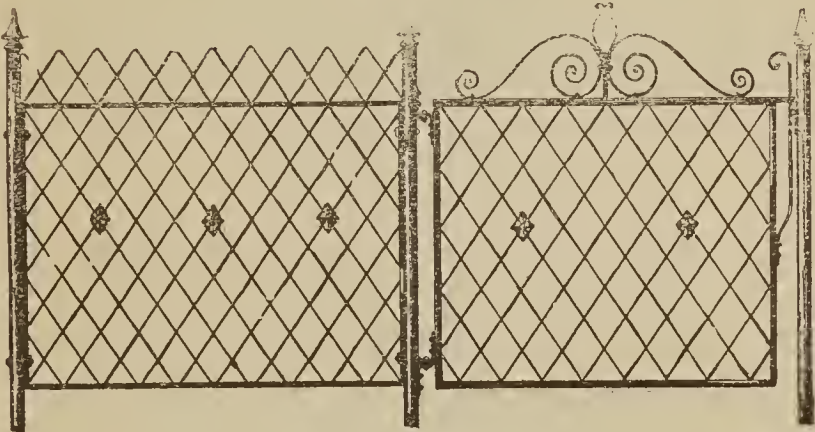
1 caoutchouc, 16 turpentine. Dissolve with a gentle heat, then add 8 parts boiled oil. Mix by bringing them to the heat of boiling water; apply to the steel with a brush, in the way of varnish. It may be removed with turpentine.

To Clean Brass.

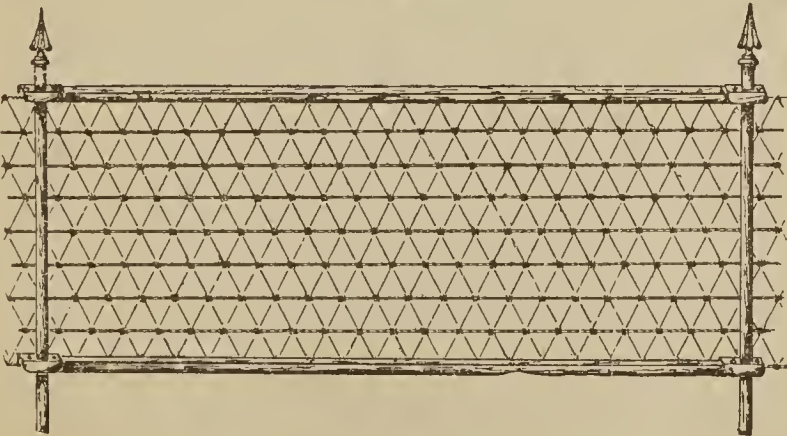
1 Roche alum and 16 water. Mix. The articles to be cleaned must be made warm, then rubbed with the above mixture, and finished with fine tripoli.



No. 1162



No. 1163



No. 1164

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

No. 1165. Grave lot enclosure; 36 inches high, 7-16 inch pickets, \$1.60 per lineal foot; 3-foot ornamental gates, \$16.00; plain top, \$12.00 each.

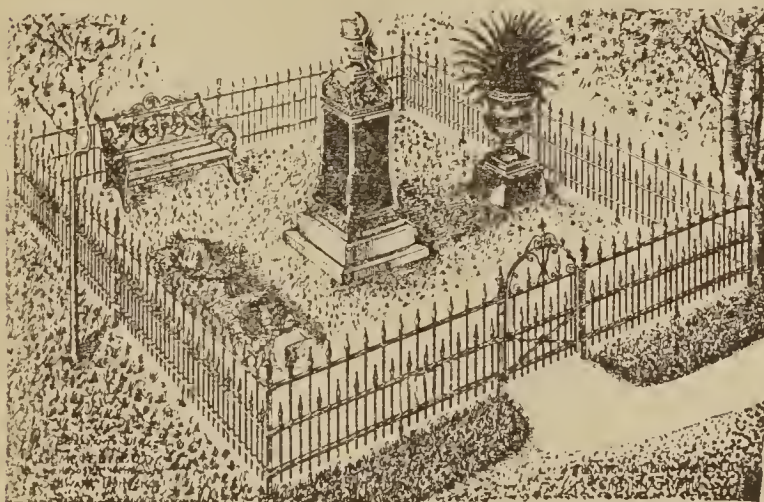
No. 1166. Grave lot enclosure, with cast iron posts, 3 feet high, 1 ¼ inch diameter iron pipe, as per cut, \$2.00 per lineal foot. Ornamental gate, \$10.00; plain gate, \$8.00 each.

No. 1167. Pipe rail enclosure, per cut, 3 feet high, with malleable ball fittings and slide top rail for gate, 1 ¼ inch diameter pipe, \$1.60 per lineal foot, complete for erection.

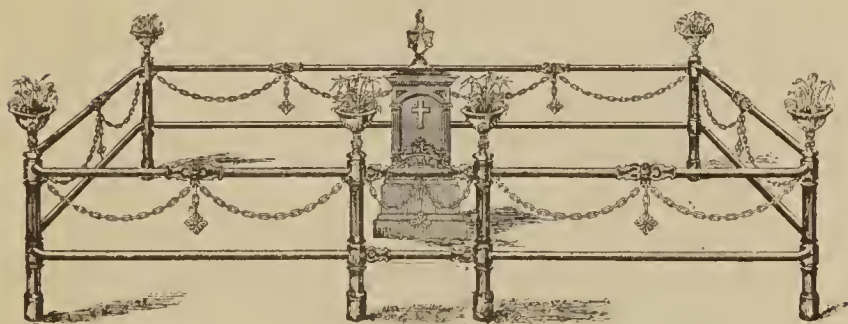
CAST IRON PIPES. Weight of a Lineal Foot.

| Bore in Inches. | Thickness of Metal in Inches. | | | | |
|--------------------|-------------------------------|-------|--------|--------|--------|
| | ¼ | ⅜ | ½ | ⅝ | ¾ |
| | Lbs. | Lbs. | Lbs. | Lbs. | Lbs. |
| 2..... | 5.52 | 8.74 | 12.27 | 16.11 | 20.25 |
| 2½..... | 6.75 | 10.58 | 14.73 | 19.18 | 23.95 |
| 3..... | 7.93 | 12.43 | 17.18 | 22.24 | 27.61 |
| 3½..... | 9.20 | 14.27 | 19.64 | 25.31 | 31.29 |
| 4..... | 10.43 | 16.11 | 22.09 | 28.38 | 34.98 |
| 4½..... | 11.66 | 17.95 | 24.54 | 31.45 | 38.66 |
| 5..... | 12.89 | 19.79 | 27.00 | 34.52 | 42.34 |
| 5½..... | 14.11 | 21.63 | 29.45 | 37.58 | 46.02 |
| 6..... | 15.34 | 23.47 | 31.91 | 40.65 | 49.70 |
| 7..... | 17.79 | 27.15 | 36.82 | 46.79 | 57.06 |
| 8..... | 20.25 | 30.83 | 41.72 | 52.92 | 64.43 |
| 9..... | 22.70 | 34.52 | 46.63 | 59.06 | 71.79 |
| 10..... | 25.16 | 38.20 | 51.54 | 65.19 | 79.15 |
| 11..... | 27.61 | 41.88 | 56.45 | 71.33 | 86.52 |
| 12..... | 30.07 | 45.56 | 61.36 | 77.47 | 93.88 |
| 13..... | 32.52 | 49.24 | 66.27 | 83.60 | 101.24 |
| 14..... | 34.98 | 52.92 | 71.18 | 89.74 | 108.61 |
| 15..... | ..... | 56.60 | 76.09 | 95.87 | 115.97 |
| 16..... | ..... | 60.29 | 80.99 | 102.01 | 123.33 |
| 18..... | ..... | 67.65 | 90.81 | 114.28 | 138.06 |
| 20..... | ..... | ..... | 100.63 | 126.55 | 152.79 |
| 22..... | ..... | ..... | 110.45 | 138.83 | 167.51 |
| 24..... | ..... | ..... | 120.26 | 151.10 | 182.24 |

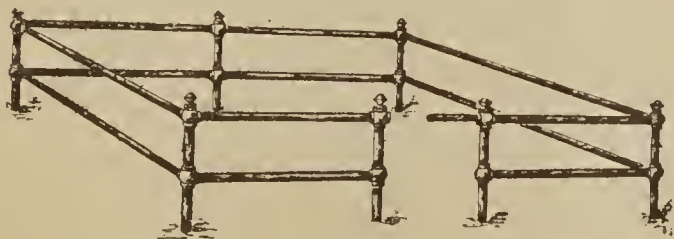
(Continued on page 84)



No. 1165



No. 1166



No. 1167

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

No. 1168. A low wire enclosure made of hard crimped wire and round iron frame, intended for single graves or flower beds. 12 inches high, 60c per lineal foot; 15 inches high, 64c per lineal foot; 18 inches high, 72c per lineal foot; neatly painted in black and trimmed with bronze.

No. 910. Trellis, 4 feet high, 15 inches wide at top, \$1.00 each; 5 feet high, 18 inches wide at top, \$1.20 each; 6 feet high, 20 inches wide at top, \$1.60 each. Larger sizes to order.

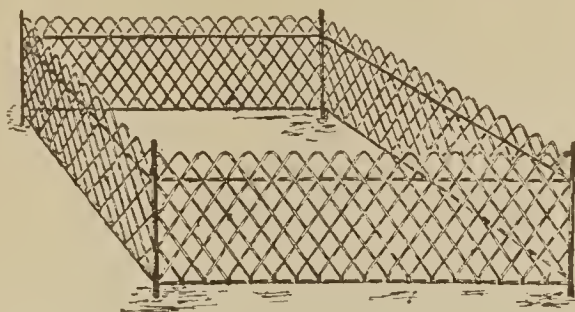
No. 911. Tree guard, made of $\frac{3}{4}$ -inch steel channels, \$4.00 each.

No. 912. Trellis, 4 ft. high, 8 inches wide, \$1.20 each.
5 ft. high, 10 inches wide, \$1.60 each
6 ft. high, 12 inches wide, \$1.80 each.

CAST IRON PIPES Weight of a Lineal Foot

| Bore in Inches. | Thickness of Metal in Inches. | | | | |
|-----------------------|-------------------------------|--------|----------------|----------------|----------------|
| | $\frac{7}{8}$ | 1 | $1\frac{1}{8}$ | $1\frac{1}{4}$ | $1\frac{1}{2}$ |
| | Lbs. | Lbs. | Lbs. | Lbs. | Lbs. |
| 2..... | 24.70 | 29.45 | 34.52 | 39.88 | 51.54 |
| 2 $\frac{1}{2}$ | 28.99 | 34.36 | 40.04 | 46.02 | 58.91 |
| 3..... | 32.29 | 39.27 | 45.56 | 52.16 | 66.27 |
| 3 $\frac{1}{2}$ | 37.58 | 44.18 | 51.08 | 58.29 | 73.63 |
| 4..... | 41.88 | 49.09 | 56.60 | 64.43 | 80.99 |
| 4 $\frac{1}{2}$ | 46.18 | 54.00 | 62.13 | 70.56 | 88.36 |
| 5..... | 50.47 | 58.91 | 67.65 | 76.70 | 95.72 |
| 5 $\frac{1}{2}$ | 54.76 | 63.81 | 73.17 | 82.84 | 103.08 |
| 6..... | 59.06 | 68.72 | 78.69 | 88.97 | 110.45 |
| 7..... | 67.65 | 78.54 | 89.74 | 101.24 | 125.17 |
| 8..... | 76.24 | 88.36 | 100.78 | 113.52 | 139.90 |
| 9..... | 84.83 | 98.18 | 111.83 | 125.79 | 154.63 |
| 10..... | 93.42 | 107.99 | 122.87 | 138.06 | ..... |
| 11..... | 102.01 | 117.81 | 133.92 | 150.33 | ..... |
| 12..... | 110.60 | 127.63 | 144.96 | 162.60 | ..... |
| 13..... | 119.19 | 137.45 | 156.01 | 174.87 | ..... |
| 14..... | 127.78 | 147.26 | 167.05 | 187.15 | ..... |
| 15..... | 136.37 | 157.08 | 178.10 | 199.42 | ..... |
| 16..... | 144.96 | 166.90 | 189.14 | 211.69 | ..... |
| 18..... | 162.14 | 186.53 | 211.23 | 236.23 | ..... |
| 20..... | 179.32 | 206.17 | 233.32 | 260.78 | ..... |
| 22..... | 196.50 | 225.80 | 255.41 | 285.32 | ..... |
| 24..... | 213.68 | 245.44 | 277.50 | 309.87 | ..... |

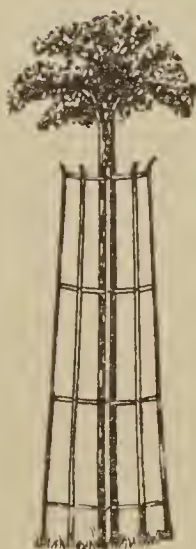
Note.—For each joint add a foot in length of the pipe.



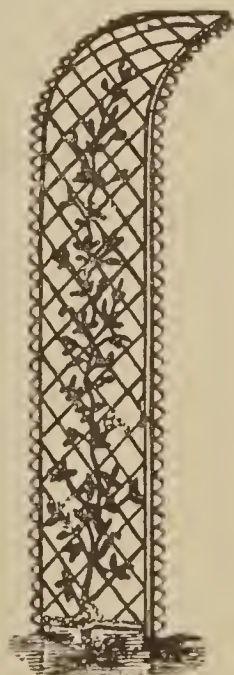
No. 1168



No. 910



No. 911



No. 912

No. 913. Flower bed border, with arch and basket, 4 feet diameter, \$10.00; 5 feet diameter, \$12.00; 6 feet diameter, \$16.00. A substantial and neat fixture for small lawns.

No. 914. Arched summer house of heavy crimped wire, 5 foot span, 3 feet 6 inches wide, 8 feet high, with two seats, \$48.00. Special designs of various styles wire and iron summer houses or flower pavillions submitted free of charge.

SHEET IRON.

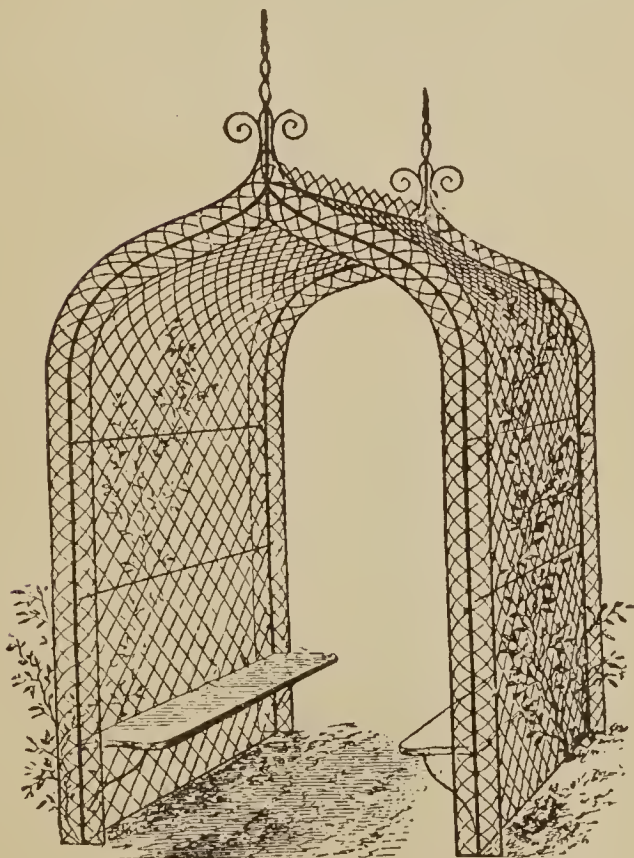
Weight of a Superficial Foot Rolled to U. S. Gauge.

Note.—Where accuracy is required, give thickness in thousandths of an inch, or weight per foot. See note on "Gauges," pages 85-86.

| No. of Gauge | Weight per foot | No. of Gauge | Weight per foot |
|--------------|-----------------|--------------|-----------------|
| 1 | 11.25 | 16=1-16 | 2.5 |
| 2 | 10.625 | 17 | 2.25 |
| 3=1/4 | 10. | 18 | 2.00 |
| 4 | 9.375 | 19 | 1.75 |
| 5 | 8.75 | 20 | 1.50 |
| 6 | 8.125 | 21 | 1.375 |
| 7 | 7.5 | 22=1-32 | 1.25 |
| 8 | 6.875 | 23 | 1.125 |
| 9 | 6.25 | 24 | 1. |
| 10 | 5.625 | 25 | .875 |
| 11=1/8 | 5. | 26 | .75 |
| 12 | 4.375 | 27 | .6875 |
| 13 | 3.75 | 28 | .625 |
| 14 | 3.125 | 29 | .5625 |
| 15 | 2.8125 | 30 | .5 |



No. 913



No. 914

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

PLATE IRON. Weight of Superficial Foot. Add 2 per cent. for Steel.

| Thickness in inches | Weight lbs. | Thickness in inches | Weight lbs. |
|------------------------|----------------|------------------------|----------------|
| 1-32=.03125 | 1.25 | 5-16=.3125 | 12.50 |
| 1-16=.0625 | 2.50 | $\frac{3}{8}$ =.375 | 15.00 |
| 3-32=.0937 | 3.75 | 7-16=.4375 | 17.50 |
| $\frac{1}{8}$ =.125 | 5.00 | $\frac{1}{2}$ =.5 | 20.00 |
| 5-32=.1562 | 6.25 | 9-16=.5625 | 22.50 |
| 3-16=.1875 | 7.50 | $\frac{5}{8}$ =.625 | 25.00 |
| 7-32=.2187 | 8.75 | $\frac{3}{4}$ =.75 | 30.00 |
| $\frac{1}{4}$ =.25 | 10.00 | $\frac{7}{8}$ =.875 | 35.00 |
| 9-32=.2812 | 11.25 | 1=1. | 40.00 |

WROUGHT SPIKES. Number to a Keg of 200 Lbs.

| Length. | $\frac{1}{4}$ in. | 5-16 in. | $\frac{3}{8}$ in. | 7-16 in. | $\frac{1}{2}$ in. |
|---------------------------|-------------------|----------|-------------------|----------|-------------------|
| 3 inch..... | 3000 | | | | |
| 3 $\frac{1}{2}$ inch..... | 2520 | 1605 | | | |
| 4 inch..... | 2200 | 1512 | | | |
| 4 $\frac{1}{2}$ inch..... | 1952 | 1418 | | | |
| 5 inch..... | 1840 | 1240 | 1000 | | |
| 6 inch..... | 1722 | 1157 | 836 | | |
| 7 inch..... | 1548 | 1030 | 643 | 526 | 403 |
| 8 inch..... | | 900 | 607 | 461 | 352 |
| 9 inch..... | | 800 | 565 | 400 | 318 |
| 10 inch..... | | | 520 | 360 | 282 |
| 11 inch..... | | | 466 | 322 | 256 |
| 12 inch..... | | | 418 | 300 | 235 |

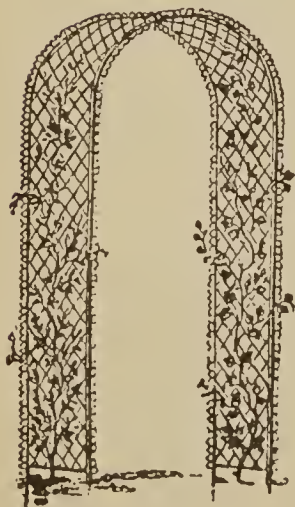
STREET AND TRAM RAIL SPIKES. Counter-Sunk Heads.

| Size. | No. to Keg of 200 lbs. | No. to lay 1 m., the holes 2 ft. apart. |
|---------------------------------|---------------------------|--|
| | | Pounds. Kegs. |
| 2 $\frac{1}{2}$ x $\frac{1}{4}$ | 3067 | 345=2 $\frac{1}{8}$ |
| 2 $\frac{1}{2}$ x 5-16 | 2293 | 565=3 $\frac{3}{4}$ |
| 3 x 5-16 | 1667 | 640=4 $\frac{1}{4}$ |
| 3 $\frac{1}{2}$ x 5-16 | 1533 | 690=4 3-5 |
| 5 x 5-16 | 1200 | 880=5 $\frac{7}{8}$ |
| 6 x 5-16 | 1120 | 940=6 $\frac{1}{2}$ |
| 4 x $\frac{1}{2}$ | 707 | 1500=10 |
| 4 $\frac{1}{2}$ x $\frac{1}{2}$ | 640 | 1650=11 |
| 6 x $\frac{1}{2}$ | 480 | 2190=14 $\frac{5}{8}$ |
| 6 x 9-16 | 360 | 2930=19 $\frac{1}{2}$ |

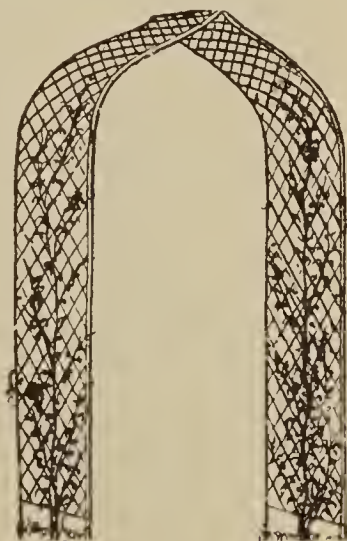


No. 915

Wire Arches Nos. 915, 916 and 917.
 4 feet high, 24 inch span, and 6 inches deep, \$1.60 each; 5 feet high, 30 inch span, and 8 inches deep, \$2.00 each; 6 feet high, 36 inch span, and 10 inches deep, \$3.60 each; 7 feet high, 42 inch span, and 12 inches deep, \$6.00 each. Signs, 50c each, and 40c per letter each net extra. Hanging baskets, 50c net extra. All neatly painted and trimmed with gold _bronze.



No. 916



No. 917

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

Nos. 1175 and 1177 are our standard fence posts, made of 1¼ inch diameter, heavy wrought iron pipe, with strong base plate and channel iron braces, and are always included in the fence prices, but No. 1176 cast iron post, inclusive the anchor for same, is \$4.00 net extra each when ordered with a fence.

No. 1178. Iron cap for wood hitching post, 8 inches high, 4 inches in diameter, \$1.20 each.

No. 1179. Horse head, 16 inches high, \$2.40 each.

WIRE. Weight of 100 Lineal Feet.

| B. W. Gauge | Iron | Steel | Brass | Copper |
|----------------|-------|-------|-------|--------|
| | Lbs. | Lbs. | Lbs. | Lbs. |
| 0 | 30.58 | 30.92 | 33.43 | 35.17 |
| 1 | 25.75 | 26.04 | 28.15 | 29.62 |
| 2 | 21.34 | 21.57 | 23.32 | 24.54 |
| 3 | 18.02 | 18.22 | 19.70 | 20.72 |
| 4 | 15.11 | 15.28 | 16.52 | 17.38 |
| 5 | 12.46 | 12.59 | 13.62 | 14.33 |
| 6 | 11.45 | 11.57 | 12.51 | 13.16 |
| 7 | 9.25 | 9.35 | 10.11 | 10.64 |
| 8 | 7.29 | 7.37 | 7.97 | 8.38 |
| 9 | 6.60 | 6.68 | 7.22 | 7.59 |
| 10 | 4.96 | 5.02 | 5.43 | 5.71 |
| 11 | 4.13 | 4.18 | 4.52 | 4.75 |
| 12 | 3.14 | 3.18 | 3.43 | 3.61 |
| 13 | 2.34 | 2.36 | 2.55 | 2.69 |
| 14 | 1.69 | 1.71 | 1.85 | 1.95 |
| 15 | 1.37 | 1.39 | 1.50 | 1.58 |
| 16 | 1.05 | 1.06 | 1.15 | 1.21 |
| 17 | .804 | .815 | .877 | .928 |
| 18 | .612 | .622 | .674 | .704 |
| 19 | .471 | .478 | .510 | .547 |
| 20 | .326 | .331 | .342 | .372 |
| 21 | .271 | .274 | .293 | .310 |
| 22 | .208 | .210 | .224 | .237 |
| 23 | .166 | .167 | .179 | .189 |
| 24 | .128 | .129 | .138 | .147 |
| 25 | .106 | .107 | .114 | .121 |
| 26 | .086 | .087 | .093 | .098 |
| 27 | .068 | .069 | .073 | .078 |
| 28 | .052 | .053 | .056 | .059 |
| 29 | .045 | .046 | .048 | .051 |
| 30 | .038 | .039 | .041 | .044 |



No. 1175



No. 1176



No. 1177



No. 1178



No. 1179

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

BOARD MEASURE.

In board measure all boards are assumed to be 1 inch in thickness.

| Breadth, Inches | Area of a Lineal Ft. | Breadth, Inches | Area of a Lineal Ft. | Breadth, Inches | Area of a Lineal Ft. |
|--------------------|-------------------------|--------------------|-------------------------|--------------------|-------------------------|
| $\frac{1}{4}$ | .021 | $4\frac{1}{4}$ | .354 | $8\frac{1}{4}$ | .688 |
| $\frac{1}{2}$ | .042 | $4\frac{1}{2}$ | .375 | $8\frac{1}{2}$ | .708 |
| $\frac{3}{4}$ | .063 | $4\frac{3}{4}$ | .396 | $8\frac{3}{4}$ | .729 |
| 1 | .083 | 5 | .417 | 9 | .75 |
| $1\frac{1}{4}$ | .104 | $5\frac{1}{4}$ | .438 | $9\frac{1}{4}$ | .771 |
| $1\frac{1}{2}$ | .125 | $5\frac{1}{2}$ | .458 | $9\frac{1}{2}$ | .792 |
| $1\frac{3}{4}$ | .146 | $5\frac{3}{4}$ | .479 | $9\frac{3}{4}$ | .813 |
| 2 | .167 | 6 | .5 | 10 | .833 |
| $2\frac{1}{4}$ | .188 | $6\frac{1}{4}$ | .521 | $10\frac{1}{4}$ | .854 |
| $2\frac{1}{2}$ | .208 | $6\frac{1}{2}$ | .542 | $10\frac{1}{2}$ | .875 |
| $2\frac{3}{4}$ | .229 | $6\frac{3}{4}$ | .563 | $10\frac{3}{4}$ | .896 |
| 3 | .25 | 7 | .583 | 11 | .917 |
| $3\frac{1}{4}$ | .271 | $7\frac{1}{4}$ | .604 | $11\frac{1}{4}$ | .938 |
| $3\frac{1}{2}$ | .292 | $7\frac{1}{2}$ | .625 | $11\frac{1}{2}$ | .958 |
| $3\frac{3}{4}$ | .313 | $7\frac{3}{4}$ | .646 | $11\frac{3}{4}$ | .979 |
| 4 | .333 | 8 | .667 | 12 | 1. |

Area of a lineal foot multiplied by length in feet will give superficial contents in square feet.

To Compute Volume of Square Timber.

When all the dimensions are in feet:

Rule. Multiply the breadth by the depth and that product by the length, and the product will give the volume in cubic feet.

When either of the dimensions are in inches:

Rule. Multiply as above and divide by 12.

When any two of the dimensions are in inches.

Rule. Multiply as before and divide by 144.

SHRINKAGE OF CASTINGS.

In locomotive cylinders=1-16 inch in a foot.

Pipes= $\frac{1}{8}$ inch in a foot.

Girders, beams, etc.= $\frac{1}{8}$ in 15 inches.

Engine-beams, connecting-rods, etc.= $\frac{1}{8}$ inch in 16 inches.

Large cylinders, say 70 inch diameter, 10 foot stroke, the contraction of diameter= $\frac{3}{8}$ inch at top.

Ditto= $\frac{1}{2}$ inch at bottom.

Ditto in length= $\frac{1}{8}$ inch in 16 inches.

Thin brass= $\frac{1}{8}$ inch in 9 inches.

Thick brass= $\frac{1}{8}$ inch in 10 inches.

Zinc=5-16 inch in a foot.

Lead=5-16 inch in a foot.

Copper=3-16 inch in a foot.

Bismuth=5-32 inch in a foot.

Tin= $\frac{1}{4}$ inch in a foot.



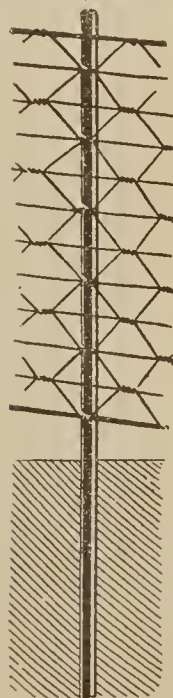
No. 1180



No. 1181



No. 1182



No. 1183

No. 1180. Hitching post of $1\frac{3}{4}$ -inch diameter pipe to set on walk or into ground, \$2.80 each.

No. 1181. Rustic hitching post, \$6.40 each.

Nos. 1182 and 1183 show $1\frac{1}{4}$ -inch steel tee fence post which is adapted to our American lawn fence, as per cut, and can be applied by inserting the horizontal cables into the openings of the back stay, and being clinched with a hammer stroke. Price, 72c for 30-inch wide fence.

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

Reservoir vases of the finest cast iron, neatly painted; are an ornament for any lawn.

No. G 10. Total height, 32 inches; diameter of base, 28 inches; width, inclusive handles, 43 inches; reservoir, $2\frac{1}{2}$ gallons; painted white, \$20.00; with bronze trimmings, \$22.00.

No. L 2. Total height, 42 inches; diameter of vase, $18\frac{1}{2}$ inches; width, inclusive handles, 34 inches; reservoir, $4\frac{1}{2}$ gallons. Price, painted, \$28.00; with bronze trimmings, \$30.00.

No. H 2. Height 48 inches; diameter, 28 inches; base, 21 inches square; reservoir, $2\frac{1}{2}$ gallons. Price, painted, \$22.00; with bronze trimmings, \$24.00.

SQUARE TIMBER. Table of $\frac{1}{4}$ Girths.

| $\frac{1}{4}$ Girth, Inches | Area in Feet | $\frac{1}{4}$ Girth, Inches | Area in Feet | $\frac{1}{4}$ Girth, Inches | Area in Feet |
|--------------------------------|-----------------|--------------------------------|-----------------|--------------------------------|-----------------|
| 6 | .250 | $12\frac{1}{4}$ | 1.04 | 19 | 2.50 |
| $\frac{1}{4}$ | .272 | $\frac{1}{2}$ | 1.08 | $\frac{1}{2}$ | 2.64 |
| $\frac{1}{2}$ | .294 | $\frac{3}{4}$ | 1.12 | 20 | 2.77 |
| $\frac{3}{4}$ | .317 | 13 | 1.17 | $\frac{1}{2}$ | 2.91 |
| 7 | .340 | $\frac{1}{4}$ | 1.21 | 21 | 3.06 |
| $\frac{1}{4}$ | .364 | $\frac{1}{2}$ | 1.26 | $\frac{1}{2}$ | 3.20 |
| $\frac{1}{2}$ | .390 | $\frac{3}{4}$ | 1.31 | 22 | 3.36 |
| $\frac{3}{4}$ | .417 | 14 | 1.36 | $\frac{1}{2}$ | 3.51 |
| 8 | .444 | $\frac{1}{4}$ | 1.41 | 23 | 3.67 |
| $\frac{1}{4}$ | .472 | $\frac{1}{2}$ | 1.46 | $\frac{1}{2}$ | 3.83 |
| $\frac{1}{2}$ | .501 | $\frac{3}{4}$ | 1.51 | 24 | 4. |
| $\frac{3}{4}$ | .531 | 15 | 1.56 | $\frac{1}{2}$ | 4.16 |
| 9 | .562 | $\frac{1}{4}$ | 1.61 | 25 | 4.34 |
| $\frac{1}{4}$ | .594 | $\frac{1}{2}$ | 1.66 | $\frac{1}{2}$ | 4.51 |
| $\frac{1}{2}$ | .626 | $\frac{3}{4}$ | 1.72 | 26 | 4.69 |
| $\frac{3}{4}$ | .659 | 16 | 1.77 | $\frac{1}{2}$ | 4.87 |
| 10 | .694 | $\frac{1}{4}$ | 1.83 | 27 | 5.06 |
| $\frac{1}{4}$ | .730 | $\frac{1}{2}$ | 1.89 | $\frac{1}{2}$ | 5.25 |
| $\frac{1}{2}$ | .766 | $\frac{3}{4}$ | 1.94 | 28 | 5.44 |
| $\frac{3}{4}$ | .803 | 17 | 2. | $\frac{1}{2}$ | 5.64 |
| 11 | .840 | $\frac{1}{4}$ | 2.09 | 29 | 5.84 |
| $\frac{1}{4}$ | .878 | $\frac{1}{2}$ | 2.12 | $\frac{1}{2}$ | 6.04 |
| $\frac{1}{2}$ | .918 | $\frac{3}{4}$ | 2.18 | 30 | 6.25 |
| $\frac{3}{4}$ | .959 | 18 | 2.25 | | |
| 12 | 1. | $\frac{1}{2}$ | 2.37 | | |

Area corresponding to $\frac{1}{4}$ girth (mean) in inches multiplied by length in feet=solidity in feet and decimal parts.



G. 10



L. 2



H. 2

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

No. N 2. Total height, 33½ inches; diameter of vase, 24 inches; width, inclusive handles, 30 inches; reservoir, 2½ gallons. Price, painted, \$27.00; with bronze trimmings, \$30.00.

No. F 2. Height 34 inches; diameter, 22 inches; base, 14 inches square; reservoir, 1½ gallons. Price, painted, \$14.00; with bronze, \$16.00.

No. M 1. Height 43 inches; diameter of vase, 24 inches; reservoir, 2½ gallons. Price, painted, \$32.00; with bronze, \$34.00.

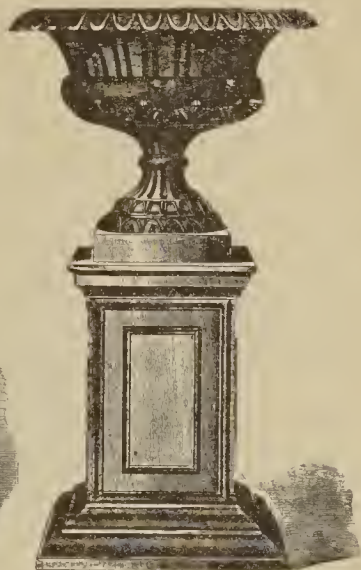
No. D 1. Height, 36½ inches; diameter of vase, 16 inches; base, 14 inches square; reservoir, 1½ gallons. Price, painted, \$12.00.

Contents (Board Measure) of 1 Lineal Foot of Timber.

| Breadth, in Inches. | Thickness in Inches. | | | | | | |
|------------------------|----------------------|-------|-------|-------|-------|-------|-------|
| | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 18..... | 3. | 4.5 | 6. | 7.5 | 9. | 10.5 | 12. |
| 17..... | 2.83 | 4.25 | 5.66 | 7.08 | 8.5 | 9.92 | 11.33 |
| 16..... | 2.67 | 4. | 5.33 | 6.67 | 8. | 9.33 | 10.67 |
| 15..... | 2.5 | 3.75 | 5. | 6.25 | 7.5 | 8.75 | 10.00 |
| 14..... | 2.33 | 3.5 | 4.67 | 5.83 | 7. | 8.17 | 9.33 |
| 13..... | 2.17 | 3.25 | 4.33 | 5.42 | 6.5 | 7.58 | 8.67 |
| 12..... | 2. | 3. | 4. | 5. | 6. | 7. | 8. |
| 11..... | 1.83 | 2.75 | 3.67 | 4.58 | 5.5 | 6.42 | 7.33 |
| 10..... | 1.67 | 2.5 | 3.33 | 4.17 | 5. | 5.83 | 6.67 |
| 9..... | 1.5 | 2.25 | 3. | 3.75 | 4.5 | 5.25 | 6. |
| 8..... | 1.33 | 2. | 2.67 | 3.33 | 4. | 4.67 | 5.33 |
| 7..... | 1.17 | 1.75 | 2.33 | 2.92 | 3.5 | 4.08 | ..... |
| 6..... | 1. | 1.5 | 2. | 2.5 | 3. | ..... | ..... |
| 5..... | .83 | 1.25 | 1.67 | 2.08 | ..... | ..... | ..... |
| 4..... | .67 | 1. | 1.33 | ..... | ..... | ..... | ..... |
| 3..... | .5 | .75 | ..... | ..... | ..... | ..... | ..... |
| 2..... | .33 | ..... | ..... | ..... | ..... | ..... | ..... |



N. 2



F. 2



M. 1



D. 1

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

No. R 2. Height 34 inches; diameter of vase, 21 inches; reservoir, $2\frac{1}{2}$ gallons. Price, painted, \$14.00; with bronze trimmings, \$18.00.

No. V 3. Height, 15 inches; diameter of vase, $19\frac{1}{2}$ inches; reservoir, 1 gallon. Price, painted, \$10.00.

QUEEN CITY SETTEE. Two seats, painted green, \$18.00; three seats, painted green, \$20.00. The seats are made of nicely finished hard wood slats, oiled and shellaced.

Contents (Board Measure) of 1 Lineal Foot of Timber—Continued.

| Breadth in Inches. | Thickness in Inches. | | | | | |
|-----------------------|----------------------|-------|-------|-------|-------|-------|
| | 9 | 10 | 11 | 12 | 13 | 14 |
| 18..... | 13.5 | 15. | 16.5 | 18. | 19.5 | 21. |
| 17..... | 12.75 | 14.17 | 15.58 | 17. | 18.42 | 19.83 |
| 16..... | 12. | 13.33 | 14.67 | 16. | 17.33 | 18.66 |
| 15..... | 11.25 | 12.5 | 13.75 | 15. | 16.25 | 17.5 |
| 14..... | 10.5 | 11.67 | 12.83 | 14. | 15.17 | 16.33 |
| 13..... | 9.75 | 10.83 | 11.92 | 13. | 14.08 | ..... |
| 12..... | 9. | 10. | 11. | 12. | ..... | ..... |
| 11..... | 8.25 | 9.17 | 10.08 | ..... | ..... | ..... |
| 10..... | 7.5 | 8.33 | ..... | ..... | ..... | ..... |
| 9..... | 6.75 | ..... | ..... | ..... | ..... | ..... |

To ascertain contents of piece of timber.—Find in the table the contents of one foot and multiply by the length in feet of the piece.

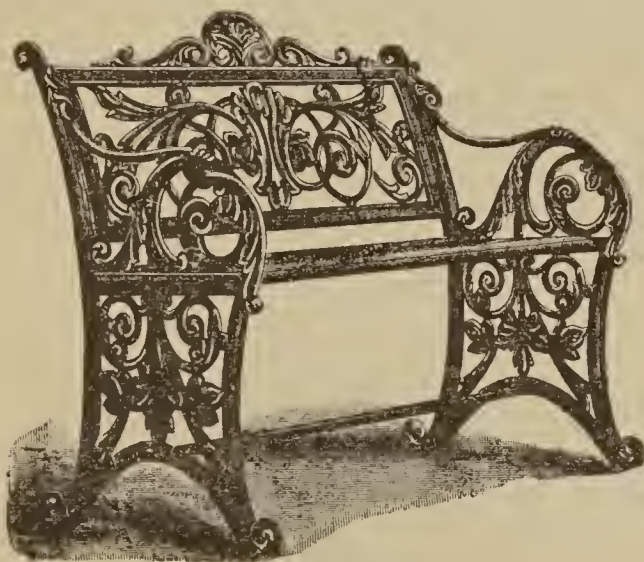
Example.—What is the contents of a piece of timber 10x11.20 feet long? $9.17 \times 20 = 183.4$ feet B. M.



R. 2



V. 3



Queen City Settee

A few designs of wrought iron transom grilles. Send sizes for estimates.

No. 213. Circular grille, with genuine gold leaf lettered sign, nicely adapted for banks and business houses.

No. 214. Square transom grille with genuine gold leaf lettered or east bronze monogram.

No. 215. Art nouveau grille, with hammered or burnt copper ornaments.

Send us your ideas on paper and see how we execute art metal work.

TO FIND WEIGHT OF TIMBER WORK.

Timber Flooring.

Rule. Multiply breadth in feet by length in feet by thickness in inches and by one of the following factors according to material: For elm, use 3.5 lbs.; for yellow pine, 3.42; for white pine, 2.97; for dry oak, 4.04.

To Find Weight of Timber Beams, Posts, and Joists:

Rule. Multiply length in feet by breadth and depth in inches, and the product by one of the following factors: For elm, 2.92; yellow pine, 2.85; white pine, 2.47; dry oak, 4.04.

Weight per 1000 (M) Feet Board Measure.

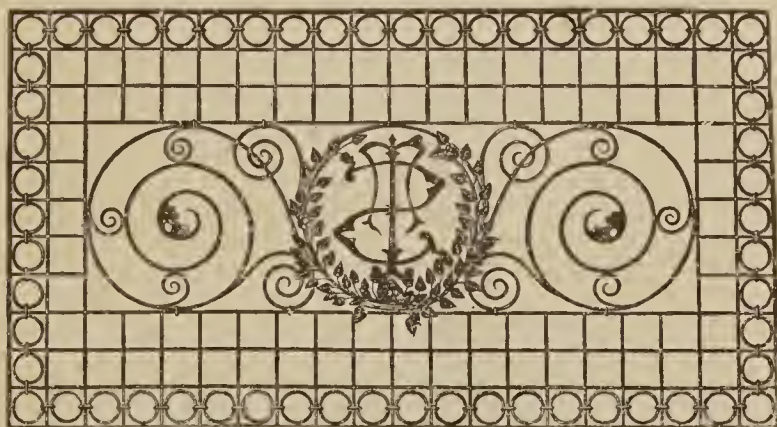
| | Dry | Part Season | Green |
|-----------------------------|-------|-------------|-------|
| | Lbs. | Lbs. | Lbs. |
| Pine and Hemlock..... | 2,500 | 2,750 | 3,000 |
| Norway and Yellow Pine..... | 3,000 | 4,000 | 5,000 |
| Oak and Walnut..... | 4,000 | 5,000 | ..... |
| Ash and Maple..... | 3,500 | 4,000 | ..... |

If the sap of green timber be prevented from escaping at the ends of the sticks, as in the case of girders, etc., enclosed air-tight in brick-work or masonry, its fermentation will produce dry rot. The painting of green timber conduces to the same end. Alternate exposure to water and air produces wet rot.

In a free circulation of dry air, timber will endure for centuries, if not attacked by worms.



No. 213



No. 214



No. 215

SLATING.

A square of slate or slating is 100 superficial feet.

In measuring, the width of the eaves is allowed at the widest part. Hips, valleys, and cutting are to be measured lineal, and 6 inches width extra is allowed.

The thickness of slates range from 3-16 to 5-16 of an inch, and their weight varies from 2.6 to 4.5 lbs. per square foot.

The lap of slates varies from 2 to 4 inches. The standard is assumed to be 3 inches.

To compute the number of slates of a given size required per squares:

Subtract 3 inches from the length of the slate, multiply the remainder by the width and divide by 2. Divide 14.400 by the number so found, and the result will be the number of slates required.

The pitch of a slate roof should not be less than 1 inch height to 4 inches length.

Dimensions of slates and number required to a square:

American.

| Size. | No. of Slate. | Weight per square about | Size. | No. of Slate. | Weight per square about |
|-------|---------------------|-------------------------------|-------|---------------------|-------------------------------|
| 12x 6 | 533 | 850 lbs. | 18x11 | 174 | 650 lbs. |
| 12x 7 | 457 | 850 lbs. | 20x10 | 169 | 650 lbs. |
| 12x 8 | 400 | 850 lbs. | 20x11 | 154 | 650 lbs. |
| 14x 7 | 374 | 750 lbs. | 20x12 | 141 | 650 lbs. |
| 14x 8 | 327 | 750 lbs. | 22x11 | 138 | 650 lbs. |
| 14x 9 | 291 | 750 lbs. | 22x12 | 126 | 675 lbs. |
| 16x 8 | 277 | 650 lbs. | 22x13 | 116 | 675 lbs. |
| 16x 9 | 246 | 650 lbs. | 24x12 | 114 | 675 lbs. |
| 16x10 | 221 | 650 lbs. | 24x13 | 105 | 675 lbs. |
| 18x 9 | 213 | 650 lbs. | 24x14 | 98 | 675 lbs. |
| 18x10 | 192 | 650 lbs. | | | |

Good American slate weighs about 174 lbs. per cubic foot. Hence:

| | | | | | |
|-------|----------------|------------|--------|-------|-----------------------|
| Slabs | $\frac{3}{4}$ | inch thick | weigh | 10.87 | lbs. per square foot. |
| Slabs | 1 | inch thick | weigh | 14.5 | lbs. per square foot. |
| Slabs | $1\frac{1}{4}$ | inch thick | weight | 18.12 | lbs. per square foot. |
| Slabs | $1\frac{1}{2}$ | inch thick | weigh | 21.75 | lbs. per square foot. |
| Slabs | 2 | inch thick | weigh | 29. | lbs. per square foot. |

SHINGLES.

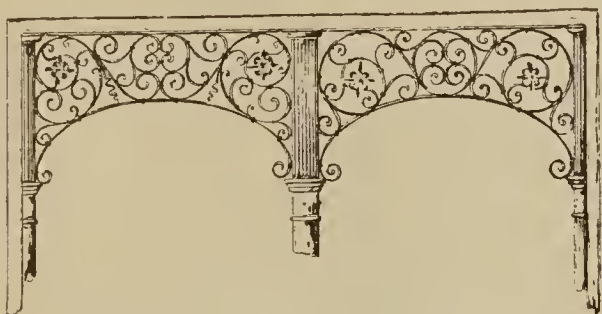
The best shingles are of white cedar. When of good quality they will last 40 to 50 years in our northern states. Cypress and white pine are much used for shingles, but will not last half as long as white cedar.

Shingles are packed 250 to the bundle, or 4 bundles to 1000.

One bundle 16-inch shingles will cover 30 square feet.

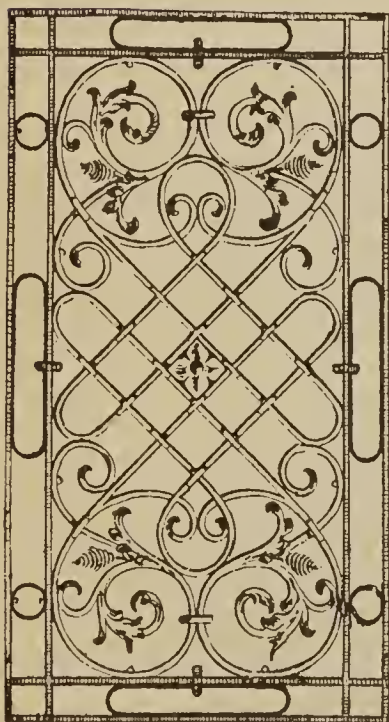
One bundle 18-inch shingles will cover 33 square feet.

When laid $5\frac{1}{2}$ inches to the weather, 5 lbs. 4d or $3\frac{3}{4}$ lbs. 3d nails will lay 1000 shingles.



No. 216

No. 217



No. 218

No. 216 and 217. Interior wrought iron transom grilles. Send sizes for estimates.

No. 218. Wrought iron door grille, permitting ventilation at night by making the glass panels to swing. A useful ornament and a good protection.

We furnish upon request designs and estimates for entire metal doors with jambs and grilles, erected in place.

WROUGHT STEEL WINDOW GUARDS

No. 219. Wrought steel window guards; $\frac{3}{4}$ inch square bars, 4 inches on center in $1\frac{1}{2}$ by $\frac{1}{2}$ inch channel crossbars, 80c per square foot.

No. 220. Curved window guard, having some preferences, which can readily be seen; $\frac{1}{2}$ inch square bars, 4 inches on centers, \$1.00; $\frac{1}{2}$ -inch round bars, 4 inches on centers, 80c per square foot.

No. 221. $\frac{3}{4}$ by $\frac{1}{2}$ inch flat steel bars, twisted on top; set through $1\frac{1}{2}$ by $\frac{1}{2}$ channel bars, \$1.00 per square foot.

CORRUGATED IRON ROOFING.

| No. B. W. Gauge. | Weight per Square Laid (100 square feet Roof Surface). | | | |
|------------------------|---|-------------------|------------------|-------------------|
| | Black. | | Galvanized. | |
| | 5 ft. Sheets. | 10 ft. Sheets. | 5 ft. Sheets. | 10 ft. Sheets. |
| 28 | 90 | 85 | 138 | 130 |
| 26 | 102 | 97 | 150 | 142 |
| 24 | 126 | 119 | 173 | 164 |
| 22 | 160 | 151 | 207 | 196 |
| 20 | 200 | 189 | 247 | 234 |
| 18 | 279 | 265 | 327 | 310 |
| 16 | 370 | 351 | 418 | 396 |

Painting adds about 20 lbs. per square.

For sheets of intermediate lengths, interpolate between weights given.

Durable roofs should be No. 20 gauge (not less than No. 22). For siding, No. 22 gauge is commonly used. Sheets can be corrugated any length up to 10 feet.

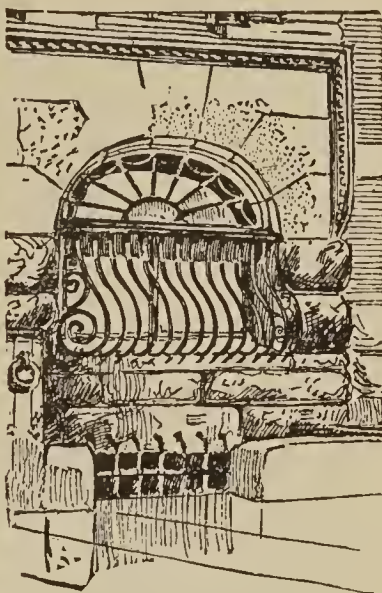
Sheets are $30\frac{1}{2}$ inches wide before, and 27 to $27\frac{1}{2}$ inches wide after corrugating.

Sheets should be laid with a lap of 6 inches in length and $1\frac{1}{2}$ corrugations in width of sheet.

From $2\frac{1}{2}$ to $3\frac{1}{2}$ lbs. of 3-16 inch rivets will be required for a square.



No. 219



No. 220



No. 221

MENSURATION.

- Area of a triangle= $\text{base} \times \frac{1}{2} \text{ altitude}$.
 Area of a parallelogram= $\text{base} \times \text{altitude}$.
 Area of a trapezoid= $\text{altitude} \times \frac{1}{2} \text{ the sum of parallel sides}$.
 Area of a trapezium: Divide into two triangles and find area of the triangles.
 Circumference of circle= $\text{diameter} \times 3.1416$.
 Diameter of circle= $\text{circumference} \times .3183$.
 Area of circle= $\text{diameter}^2 \times .7854$.
 Area of sector of circle= $\text{length of arc} \times \frac{1}{2} \text{ the radius}$.
 Area of segment of circle= $\text{area of sector of equal radius, minus area of triangle when the segment is less, and plus area of triangle when the segment is greater than the semi-circle}$.
 Area of circular ring= $\text{diameters of the two circle} \times \text{difference of diameter and that product by .7854}$.
 Side of square that shall equal area of circle= $\text{diameter} \times .8862$, or circumference $\times .2821$.
 Diameter of circle that shall contain area of a given square= $\text{side of square} \times 1.1284$.
 Area of an ellipse= $\text{product of the two diameters} \times .7854$.
 Area of parabola= $\text{base} \times \frac{2}{3} \text{ altitude}$.
 Area of regular polygon= $\text{sum of its sides} \times \text{perpendicular from its centre to one of its sides divided by 2}$.
 Surface of cylinder or prism= $\text{area of both ends plus length} \times \text{circumference}$.
 Contents of cylinder or prism= $\text{area of end} \times \text{length}$.
 Surface of sphere= $\text{diameter} \times \text{circumference}$.
 Contents of sphere= $\text{diameter}^3 \times .5236$.
 Convex surface of segment of sphere= $\text{height of segment} \times \text{circumference of the sphere of which it is a part}$.
 Contents of segment of sphere= $(\text{height}^2 \text{ plus three times the square of radius of base}) \times (\text{height} \times .5236)$.
 Surface of pyramid or cone= $\text{circumference of base} \times \frac{1}{2} \text{ of the slant height plus area of the base}$.
 Contents of pyramid or cone= $\text{area of base} \times \frac{1}{3} \text{ altitude}$.
 Surface of frustum of cone or pyramid= $\text{sum of circumference at both ends} \times \frac{1}{2} \text{ slant height plus area of both ends}$.
 Contents of frustum of cone or pyramid= $\text{multiply areas of two ends together and extract square root. Add to this root the two areas and} \times \frac{1}{3} \text{ altitude}$.
 Contents of a wedge= $\text{area of base} \times \frac{1}{2} \text{ altitude}$.

STONE WORK.

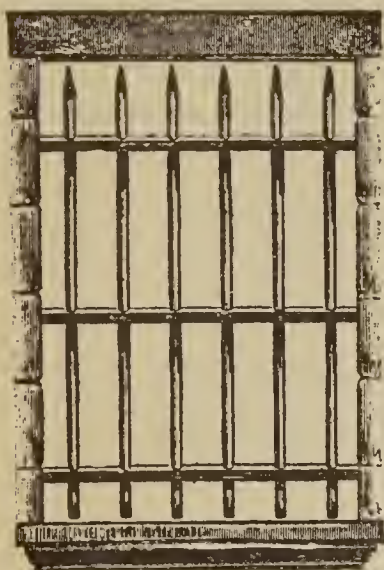
Stone walls are measured by the perch ($24\frac{3}{4}$ cubic feet.) Openings less than 3 feet wide are counted solid; over 3 feet deducted, but 18 inches are added to the running measure for each jamb built. Arches are counted solid from their spring. Corners of buildings are measured twice. Pillars less than 3 feet are counted on 3 sides as lineal, multiplied by fourth side and depth.

It is customary to measure all foundations and dimension stone by the cubic foot. Water tables and base courses by lineal feet. All sills and lintels or ashlar, by superficial feet, and no wall less than 18 inches thick.

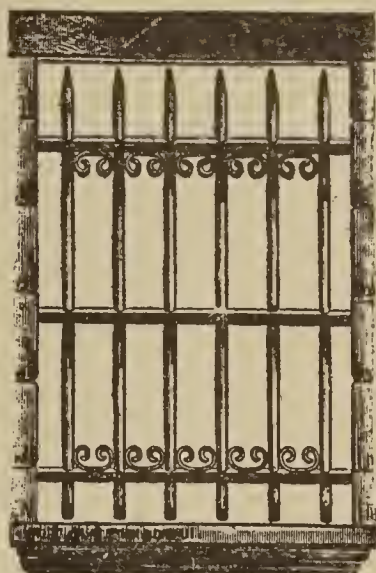
The greatest safe load per superficial foot on—

| | |
|-------------------------------|-----------------------|
| Granite Piers..... | = 40 to 80 tons |
| Lime stone Piers..... | = 25 to 60 tons |
| Sand stone Piers..... | = 20 to 40 tons |
| Common Brickwork..... | = $7\frac{1}{2}$ tons |
| Best Brickwork in cement..... | = 15 tons |
| Rubble Masonry..... | = 10 tons |
| Concrete Foundations..... | = 10 to 25 tons |

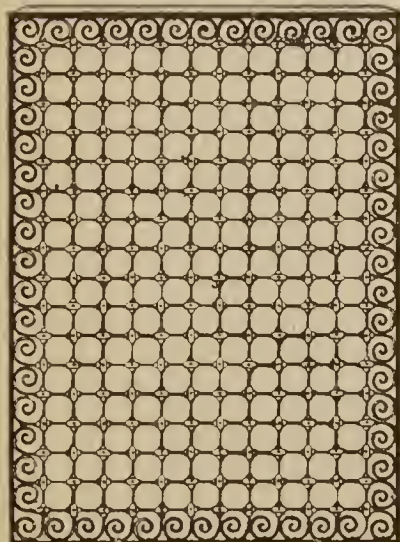
Height of piers should not exceed 12 times their thickness at base.



No. 222



No. 223



No. 224

No. 222. $\frac{1}{2}$ inch pointed bars, round iron, set through $1\frac{1}{2}$ inch by $\frac{3}{8}$ inch solid iron cross bars, 60c per square foot.

No. 223. Same construction as No. 222, with scroll ornaments, 80c per square foot.

No. 224. $\frac{3}{8}$ inch Bessemer steel grille, extra strong, in a 3-inch square mesh and $1\frac{1}{2}$ channel frame, \$1.20 per square foot.

Wire guards of any size, style or mesh and strength. There is no better protection against intruders of any kind than a properly made and fastened hard crimped wire guard. The following pages show a few of the usual styles:

No. 1801. Heavy prison or asylum guard, in channel iron frame. Prices from 30c to 50c per square foot, according to quantity and grade.

No. 1802. Heavy crimped wire guard, in round iron frame. Prices from 20c to 40c per square foot, according to quantity and style.

No. 1800. Shows actual wire gauge.

WINDOW GLASS.

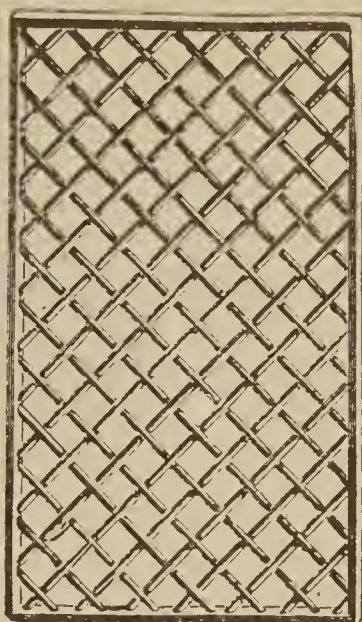
Number of Lights in a box of 50 feet.

| Size | No. Lights | Size | No. Lights | Size | No. Lights |
|-------|---------------|-------|---------------|-------|---------------|
| 6x 8 | 150 | 15x18 | 27 | 24x34 | 9 |
| 7x 9 | 115 | 15x20 | 24 | 24x36 | 9 |
| 8x10 | 90 | 15x22 | 22 | 24x38 | 8 |
| 8x11 | 82 | 15x24 | 20 | 24x40 | 8 |
| 8x12 | 75 | 15x26 | 19 | 26x32 | 9 |
| 8x13 | 69 | 16x20 | 23 | 26x34 | 8 |
| 8x14 | 64 | 16x22 | 21 | 26x36 | 8 |
| 9x12 | 67 | 16x24 | 19 | 26x38 | 7 |
| 9x13 | 62 | 16x26 | 17 | 26x40 | 7 |
| 9x14 | 57 | 16x28 | 16 | 26x42 | 7 |
| 9x15 | 53 | 16x30 | 15 | 26x44 | 6 |
| 10x13 | 56 | 18x22 | 18 | 28x36 | 7 |
| 10x14 | 52 | 18x24 | 17 | 28x38 | 7 |
| 10x15 | 48 | 18x26 | 16 | 28x40 | 7 |
| 10x16 | 45 | 18x28 | 14 | 28x42 | 6 |
| 11x14 | 47 | 18x30 | 14 | 28x44 | 6 |
| 11x15 | 44 | 18x32 | 13 | 28x46 | 6 |
| 11x16 | 41 | 20x26 | 14 | 28x48 | 5 |
| 11x18 | 39 | 20x28 | 13 | 28x50 | 5 |
| 12x15 | 40 | 20x30 | 12 | 30x38 | 7 |
| 12x16 | 38 | 20x32 | 11 | 30x40 | 6 |
| 12x18 | 34 | 20x34 | 11 | 30x42 | 6 |
| 12x20 | 30 | 20x36 | 10 | 30x44 | 6 |
| 13x16 | 35 | 22x28 | 12 | 30x46 | 5 |
| 13x18 | 31 | 22x30 | 11 | 30x48 | 5 |
| 13x20 | 28 | 22x32 | 10 | 30x50 | 5 |
| 13x22 | 25 | 22x34 | 10 | 30x52 | 5 |
| 14x18 | 29 | 22x36 | 9 | 30x54 | 4 |
| 14x20 | 26 | 22x38 | 9 | 32x40 | 6 |
| 14x22 | 24 | 24x30 | 10 | 32x42 | 6 |
| 14x24 | 22 | 24x32 | 10 | | |

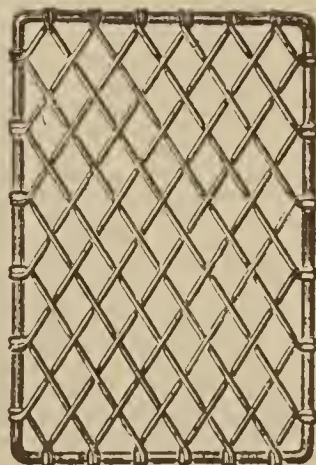
(Continued on page 110)

| No. | Wire Gauge |
|-----|------------|
| 0 | |
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |
| 6 | |
| 7 | |
| 8 | |
| 9 | |
| 10 | |
| 11 | |
| 12 | |
| 13 | |
| 14 | |
| 15 | |
| 16 | |
| 17 | |
| 18 | |
| 19 | |
| 20 | |

No. 1800



No. 1801



No. 1802

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

No. 1803. Skylight guard, made in $\frac{1}{2}$ -inch round iron frame, 1-inch square mesh, No. 12 galvanized wire, with substantial supports over glass. Price, 25c per square foot.

No. 1804. Shows construction of channel frame wire guard.

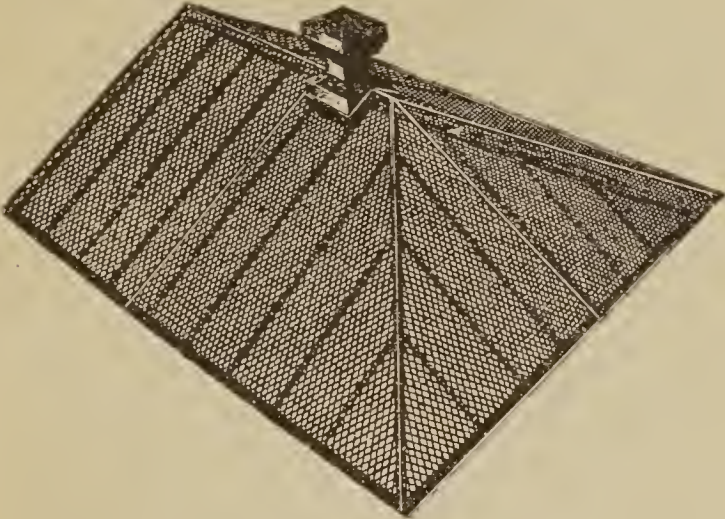
No. 1805. Shows construction of round frame wire guard.

No. 1806. Wire wagon guards from \$8.00 to \$10.00 per pair. Side braces for fastening, \$3.00 per pair.

Write for discounts.

WINDOW GLASS—Continued. Number of Lights in a box of 50 feet.

| Size | No. Lights | Size | No. Lights | Size | No. Lights |
|-------|---------------|-------|---------------|-------|---------------|
| 32x44 | 5 | 36x60 | 3 | 40x68 | 3 |
| 32x46 | 5 | 36x62 | 3 | 40x70 | 3 |
| 32x48 | 5 | 36x64 | 3 | 42x50 | 3 |
| 32x50 | 5 | 38x46 | 4 | 42x52 | 3 |
| 32x52 | 4 | 38x48 | 4 | 42x54 | 3 |
| 32x54 | 4 | 38x50 | 4 | 42x56 | 3 |
| 32x56 | 4 | 38x52 | 4 | 42x58 | 3 |
| 34x44 | 5 | 38x54 | 4 | 42x60 | 3 |
| 34x46 | 5 | 38x56 | 3 | 42x62 | 3 |
| 34x48 | 5 | 38x58 | 3 | 42x64 | 3 |
| 34x50 | 4 | 38x60 | 3 | 42x66 | 3 |
| 34x52 | 4 | 38x62 | 3 | 42x68 | 3 |
| 34x54 | 4 | 38x64 | 3 | 42x70 | 2 |
| 34x56 | 4 | 38x66 | 3 | 44x54 | 3 |
| 34x58 | 4 | 40x48 | 4 | 44x56 | 3 |
| 34x60 | 4 | 40x50 | 4 | 44x58 | 3 |
| 36x46 | 4 | 40x52 | 3 | 44x60 | 3 |
| 36x48 | 4 | 40x54 | 3 | 44x62 | 3 |
| 36x50 | 4 | 40x56 | 3 | 44x64 | 3 |
| 36x52 | 4 | 40x60 | 3 | 44x66 | 2 |
| 36x54 | 4 | 40x62 | 3 | 44x68 | 2 |
| 36x56 | 4 | 40x64 | 3 | 44x70 | 2 |
| 36x58 | 3 | 40x66 | 3 | 44x72 | 2 |



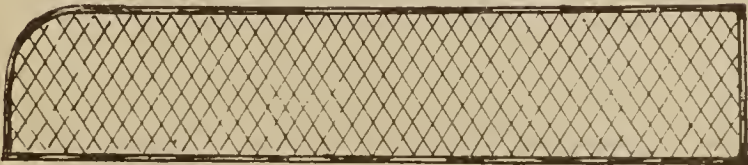
No. 1803



No. 1804



No. 1805



No. 1806

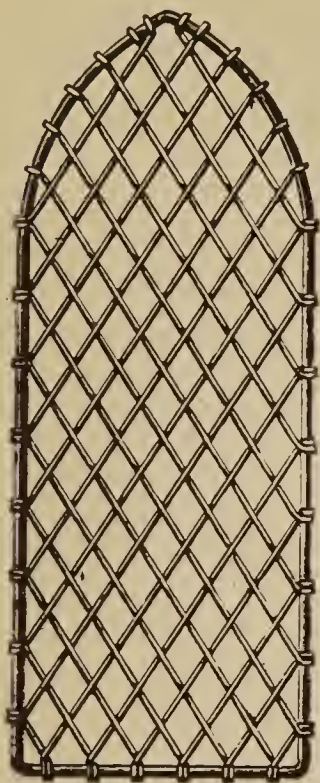
SPOKANE ORNAMENTAL IRON & WIRE WORKS.

STRENGTH OF WHITE PINE STRUTS OR PILLARS.

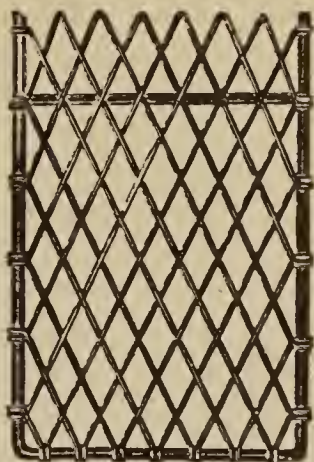
| Length in feet. | Safe load in tons of 2000 lbs. Dimensions of Cross-Sections in Ins. | | | | | | | |
|--------------------|--|-----|-----|-----|-----|------|------|------|
| | 4x5 | 4x6 | 4x7 | 4x8 | 4x9 | 4x10 | 4x11 | 4x12 |
| 6..... | 4.1 | 5.0 | 5.8 | 6.6 | 7.4 | 8.3 | 9.1 | 9.9 |
| 7..... | 3.8 | 4.5 | 5.3 | 6.0 | 6.8 | 7.5 | 8.3 | 9.0 |
| 8..... | 3.5 | 4.2 | 4.9 | 5.6 | 6.3 | 7.0 | 7.7 | 8.4 |
| 9..... | 3.2 | 3.9 | 4.6 | 5.2 | 5.9 | 6.5 | 7.2 | 7.8 |
| 10..... | 2.9 | 3.5 | 4.0 | 4.6 | 5.2 | 5.8 | 6.3 | 6.9 |
| 11..... | 2.6 | 3.2 | 3.7 | 4.2 | 4.7 | 5.3 | 5.8 | 6.3 |
| 12..... | 2.4 | 2.9 | 3.3 | 3.8 | 4.3 | 4.7 | 5.2 | 5.7 |
| 13..... | 2.0 | 2.4 | 2.8 | 3.2 | 3.6 | 4.0 | 4.4 | 4.8 |
| 14..... | 1.8 | 2.1 | 2.5 | 2.8 | 3.2 | 3.5 | 3.9 | 4.2 |
| 15..... | 1.4 | 1.7 | 1.9 | 2.2 | 2.5 | 2.8 | 3.0 | 3.2 |
| 16..... | 1.1 | 1.4 | 1.6 | 1.8 | 2.0 | 2.3 | 2.5 | 2.7 |
| 17..... | 1.0 | 1.2 | 1.4 | 1.6 | 1.8 | 2.0 | 2.2 | 2.4 |
| 18..... | 0.9 | 1.1 | 1.2 | 1.4 | 1.6 | 1.8 | 1.9 | 2.1 |

| Length in feet. | Dimensions of Cross-Sections in Ins. Safe load in tons of 2000 lbs. | | | | | | | |
|--------------------|--|-----|-----|-----|-----|------|------|------|
| | 5x5 | 5x6 | 5x7 | 5x8 | 5x9 | 5x10 | 5x11 | 5x12 |
| 8..... | 5.0 | 6.0 | 7.0 | 8.0 | 9.0 | 10.0 | 11.0 | 12.0 |
| 9..... | 4.7 | 5.6 | 6.6 | 7.5 | 8.5 | 9.4 | 10.3 | 11.3 |
| 10..... | 4.4 | 5.3 | 6.2 | 7.0 | 7.9 | 8.8 | 9.7 | 10.6 |
| 11..... | 4.1 | 4.9 | 5.7 | 6.6 | 7.4 | 8.2 | 9.0 | 9.8 |
| 12..... | 3.8 | 4.6 | 5.3 | 6.1 | 6.8 | 7.6 | 8.4 | 9.1 |
| 13..... | 3.5 | 4.2 | 4.9 | 5.6 | 6.4 | 7.0 | 7.7 | 8.4 |
| 14..... | 3.2 | 3.8 | 4.5 | 5.1 | 5.8 | 6.4 | 7.0 | 7.7 |
| 15..... | 2.9 | 3.5 | 4.1 | 4.6 | 5.2 | 5.8 | 6.4 | 7.0 |
| 16..... | 2.6 | 3.1 | 3.6 | 4.2 | 4.7 | 5.2 | 5.7 | 6.2 |
| 17..... | 2.3 | 2.8 | 3.2 | 3.7 | 4.1 | 4.6 | 5.1 | 5.5 |
| 18..... | 2.1 | 2.5 | 2.9 | 3.4 | 3.8 | 4.2 | 4.6 | 5.0 |
| 19..... | 1.8 | 2.2 | 2.5 | 2.9 | 3.2 | 3.6 | 4.0 | 4.3 |
| 20..... | 1.5 | 1.8 | 2.1 | 2.4 | 2.7 | 3.0 | 3.2 | 3.6 |

| Length in feet. | Dimensions of Cross-Sections in Ins. Safe load in tons of 2000 lbs. | | | | | | | |
|--------------------|--|-----|-----|-----|------|------|------|------|
| | 6x5 | 6x6 | 6x7 | 6x8 | 6x9 | 6x10 | 6x11 | 6x12 |
| 10..... | 5.9 | 7.1 | 8.3 | 9.5 | 10.7 | 11.8 | 13.0 | 14.2 |
| 11..... | 5.6 | 6.7 | 7.8 | 8.9 | 10.0 | 11.2 | 12.3 | 13.4 |
| 12..... | 5.3 | 6.3 | 7.4 | 8.4 | 9.5 | 10.5 | 11.5 | 12.6 |
| 13..... | 5.0 | 5.9 | 6.9 | 7.9 | 8.8 | 9.8 | 10.8 | 11.8 |
| 14..... | 4.7 | 5.6 | 6.5 | 7.5 | 8.4 | 9.3 | 10.3 | 11.2 |
| 15..... | 4.4 | 5.3 | 6.2 | 7.1 | 7.9 | 8.8 | 9.7 | 10.6 |
| 16..... | 4.1 | 4.9 | 5.7 | 6.5 | 7.3 | 8.2 | 9.0 | 9.8 |
| 17..... | 3.8 | 4.5 | 5.3 | 5.9 | 6.8 | 7.5 | 8.3 | 9.0 |
| 18..... | 3.5 | 4.2 | 4.9 | 5.6 | 6.3 | 7.0 | 7.7 | 8.4 |
| 19..... | 3.2 | 3.8 | 4.4 | 5.1 | 5.7 | 6.4 | 7.0 | 7.6 |
| 20..... | 3.0 | 3.5 | 4.1 | 4.7 | 5.2 | 5.8 | 6.4 | 7.0 |
| 21..... | 2.6 | 3.1 | 3.6 | 4.1 | 4.7 | 5.2 | 5.7 | 6.2 |
| 22..... | 2.3 | 2.8 | 3.3 | 3.7 | 4.2 | 4.7 | 5.2 | 5.6 |



No. 1807



No. 1808

No. 1807. Wire church window guard, $\frac{3}{4}$ inch mesh, No. 14 galvanized wire round frame, inclusive automatic ventilator openings. Price, 25c per square foot.

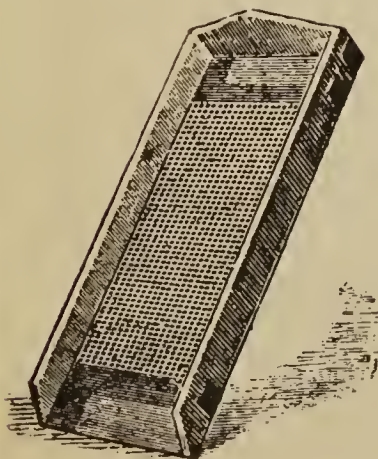
In all wire guards nothing less than 3 square feet charged.

No. 1808. Glass door guard, 5-16 inch round frame, $1\frac{1}{4}$ inch mesh No. 12 wire. Price, 40c per square foot.

All guards in either painted or galvanized wire, as may be desired.

No. 1809. Coal, sand and gravel screens, woven of hard crimped wire; any width and size of mesh; also extra heavy screens for mining purposes made to order.

Give size of mesh and quantity required for estimate.



No. 1809

Modern wrought iron light fixtures, arranged for any kind of light; first class make and any modern finish.

No. 820. Wrought iron standard and lantern from four to ten feet high. Prices, \$60.00 to \$120.00, in black finish.

No. 821. All wrought iron, 4 to 10 feet high, opalescent globe. Prices, \$50.00 to \$100.00 each, in black finish.

No. 822. All wrought iron, 3 to 6 feet high, opalescent globe. Prices, \$30.00 to \$50.00, in black finish.

No. 823. Lantern, 2 to 5 feet high, double strength plain or crystalline glass, medium weight. Prices, \$30.00 to \$60.00 each.

No. 824. All hand forged wrought iron dragon head two-light wall fixture, \$30.00 each.

STRENGTH OF WHITE PINE STRUTS OR PILLARS.

Continued.

| Length in feet. | Dimensions of Cross-Sections in Ins. Safe load in tons of 2000 lbs. | | | | | | | |
|--------------------|--|-----|------|------|------|------|------|------|
| | 7x5 | 7x6 | 7x7 | 7x8 | 7x9 | 7x10 | 7x11 | 7x12 |
| 10..... | 7.7 | 9.2 | 10.8 | 12.3 | 13.9 | 15.4 | 16.9 | 18.4 |
| 11..... | 7.2 | 8.6 | 10.1 | 11.5 | 13.0 | 14.4 | 15.8 | 17.2 |
| 12..... | 6.8 | 8.0 | 9.5 | 10.9 | 12.2 | 13.6 | 15.0 | 16.0 |
| 13..... | 6.5 | 7.7 | 9.0 | 10.3 | 11.6 | 13.0 | 14.2 | 15.4 |
| 14..... | 6.2 | 7.4 | 8.6 | 9.8 | 11.1 | 12.4 | 13.5 | 14.8 |
| 15..... | 5.9 | 7.0 | 8.2 | 9.4 | 10.5 | 11.8 | 12.9 | 14.0 |
| 16..... | 5.6 | 6.7 | 7.8 | 8.9 | 10.0 | 11.2 | 12.2 | 13.4 |
| 17..... | 5.3 | 6.4 | 7.4 | 8.5 | 9.5 | 10.6 | 11.7 | 12.8 |
| 18..... | 5.0 | 6.0 | 7.0 | 8.0 | 9.0 | 10.0 | 11.0 | 12.0 |
| 19..... | 4.7 | 5.6 | 6.6 | 7.5 | 8.5 | 9.4 | 10.3 | 11.2 |
| 20..... | 4.4 | 5.2 | 6.1 | 7.0 | 7.8 | 8.8 | 9.6 | 10.4 |
| 21..... | 4.1 | 4.9 | 5.7 | 6.5 | 7.3 | 8.2 | 8.9 | 9.8 |
| 22..... | 3.8 | 4.6 | 5.3 | 6.1 | 6.8 | 7.6 | 8.4 | 9.2 |

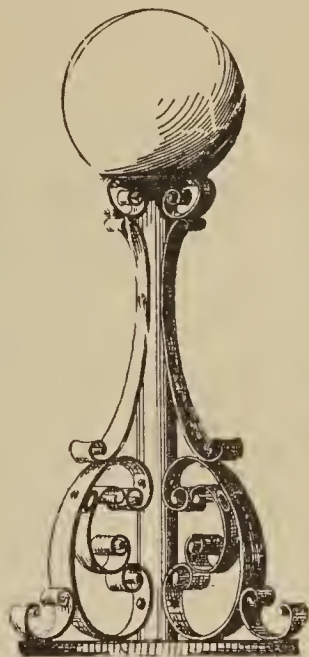
(Continued on page 116)



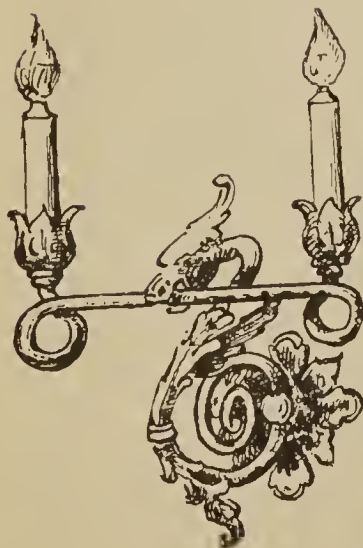
No. 820



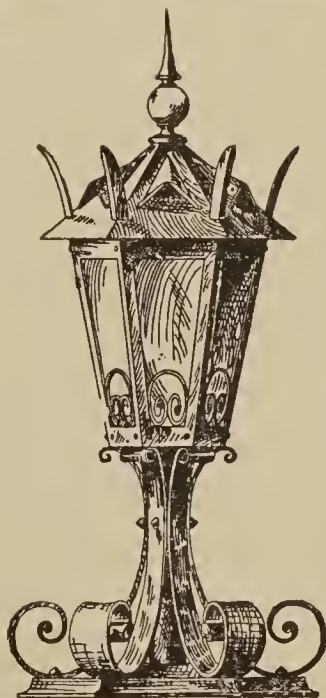
No. 821



No. 822



No. 824



No. 823

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

STRENGTH OF WHITE PINE STRUTS OR PILLARS.

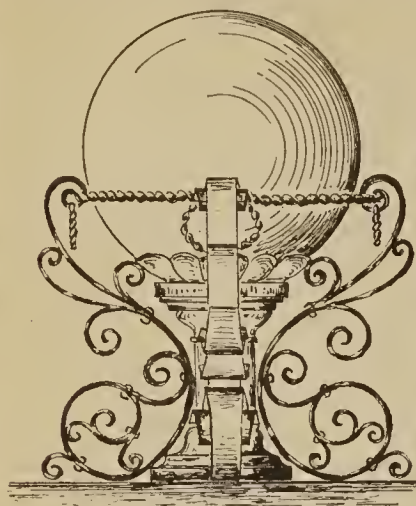
Continued.

| Length in feet. | Dimensions of Cross-Sections in Ins. Safe load in tons of 2000 lbs. | | | | | | | |
|--------------------|--|------|------|------|------|------|------|------|
| | 8x5 | 8x6 | 8x7 | 8x8 | 8x9 | 8x10 | 8x11 | 8x12 |
| 10..... | 9.6 | 11.5 | 13.4 | 15.3 | 17.2 | 19.2 | 21.0 | 23.0 |
| 11..... | 9.0 | 10.8 | 12.6 | 14.4 | 16.2 | 18.0 | 19.8 | 21.6 |
| 12..... | 8.5 | 10.2 | 11.9 | 13.6 | 15.3 | 17.0 | 18.7 | 20.4 |
| 13..... | 8.1 | 9.7 | 11.3 | 12.9 | 14.5 | 16.2 | 17.7 | 19.4 |
| 14..... | 7.7 | 9.2 | 10.8 | 12.3 | 13.9 | 15.4 | 16.9 | 18.4 |
| 15..... | 7.3 | 8.8 | 10.2 | 11.7 | 13.1 | 14.6 | 16.1 | 17.6 |
| 16..... | 7.0 | 8.4 | 9.8 | 11.2 | 12.6 | 14.0 | 15.4 | 16.8 |
| 17..... | 6.7 | 8.0 | 9.4 | 10.7 | 12.1 | 13.4 | 14.7 | 16.0 |
| 18..... | 6.4 | 7.7 | 9.0 | 10.2 | 11.5 | 12.8 | 14.1 | 15.4 |
| 19..... | 6.1 | 7.4 | 8.5 | 9.7 | 10.9 | 12.2 | 13.3 | 14.8 |
| 20..... | 5.8 | 7.0 | 8.1 | 9.3 | 10.4 | 11.6 | 12.8 | 14.0 |
| 21..... | 5.5 | 6.6 | 7.7 | 8.8 | 9.9 | 11.0 | 12.1 | 13.2 |
| 22..... | 5.3 | 6.3 | 7.4 | 8.4 | 9.5 | 10.6 | 11.6 | 12.6 |

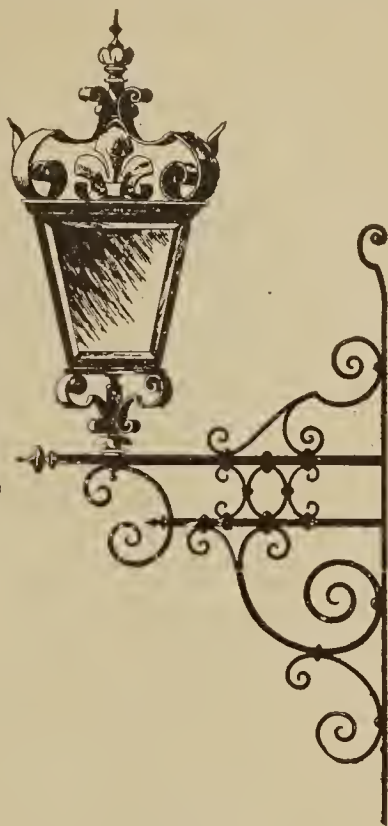
| Length in feet. | Dimensions of Cross-Sections in Ins. Safe load in tons of 2000 lbs. | | | | | | | |
|--------------------|--|------|------|------|------|------|------|------|
| | 9x5 | 9x6 | 9x7 | 9x8 | 9x9 | 9x10 | 9x11 | 9x12 |
| 10..... | 11.9 | 14.3 | 16.7 | 19.2 | 21.5 | 23.8 | 26.3 | 28.6 |
| 11..... | 11.0 | 13.1 | 15.3 | 17.6 | 19.7 | 22.0 | 24.1 | 26.2 |
| 12..... | 10.3 | 12.4 | 14.4 | 16.4 | 18.5 | 20.6 | 22.7 | 24.8 |
| 13..... | 9.8 | 11.7 | 13.7 | 15.6 | 17.5 | 19.6 | 21.5 | 23.4 |
| 14..... | 9.3 | 11.3 | 13.0 | 14.8 | 16.7 | 18.6 | 20.5 | 22.6 |
| 15..... | 8.9 | 10.7 | 12.5 | 14.2 | 16.0 | 17.8 | 19.6 | 21.4 |
| 16..... | 8.5 | 10.2 | 11.9 | 13.6 | 15.3 | 17.0 | 18.7 | 20.4 |
| 17..... | 8.2 | 9.8 | 11.4 | 13.0 | 14.7 | 16.4 | 17.9 | 19.8 |
| 18..... | 7.9 | 9.5 | 11.1 | 12.6 | 14.2 | 15.8 | 17.4 | 19.0 |
| 19..... | 7.6 | 9.1 | 10.7 | 12.0 | 13.7 | 15.2 | 16.7 | 18.2 |
| 20..... | 7.3 | 8.7 | 10.2 | 11.6 | 13.1 | 14.6 | 16.0 | 19.4 |
| 21..... | 7.0 | 8.4 | 9.8 | 11.2 | 12.6 | 14.0 | 15.4 | 17.8 |
| 22..... | 6.8 | 8.1 | 9.5 | 10.8 | 12.1 | 13.6 | 14.9 | 16.2 |

| Length in feet. | Dimensions of Cross-Sections in Ins. Safe load in tons of 2000 lbs. | | | | | | | |
|--------------------|--|------|------|------|-------|-------|-------|--|
| | 10x6 | 10x7 | 10x8 | 10x9 | 10x10 | 10x11 | 10x12 | |
| 10..... | 17.5 | 20.4 | 23.4 | 26.3 | 29.2 | 32.1 | 35.0 | |
| 11..... | 16.2 | 18.9 | 21.6 | 24.3 | 27.0 | 29.7 | 32.4 | |
| 12..... | 15.1 | 17.6 | 20.0 | 22.6 | 25.1 | 27.6 | 30.2 | |
| 13..... | 14.2 | 16.6 | 19.0 | 21.3 | 23.7 | 26.1 | 28.4 | |
| 14..... | 13.5 | 15.8 | 18.0 | 20.3 | 22.5 | 24.8 | 27.0 | |
| 15..... | 12.9 | 15.1 | 17.2 | 19.4 | 21.5 | 23.7 | 25.8 | |
| 16..... | 12.3 | 14.4 | 16.4 | 18.5 | 20.5 | 22.6 | 24.6 | |
| 17..... | 11.8 | 13.7 | 15.6 | 17.6 | 19.6 | 21.6 | 23.6 | |
| 18..... | 11.3 | 13.1 | 15.2 | 17.0 | 18.9 | 21.8 | 22.6 | |
| 19..... | 10.9 | 12.7 | 14.6 | 16.4 | 18.2 | 20.0 | 21.8 | |
| 20..... | 10.5 | 12.2 | 14.0 | 15.8 | 17.5 | 19.3 | 21.0 | |
| 21..... | 10.0 | 11.7 | 13.4 | 15.0 | 16.7 | 18.4 | 20.0 | |
| 22..... | 9.6 | 11.2 | 12.8 | 14.4 | 16.0 | 17.6 | 19.2 | |

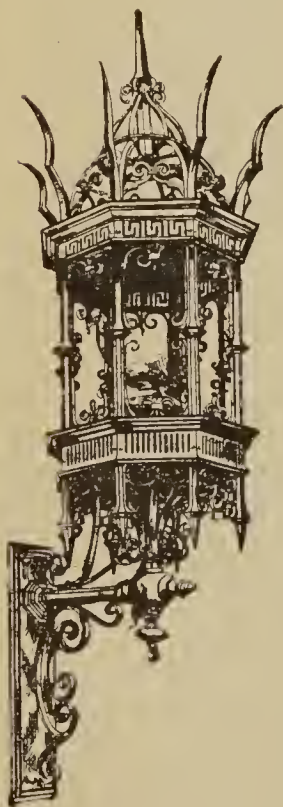
(Continued on page 118)



No. 825



No. 826



No. 827

No. 825. All heavy wrought iron electroliere, with opalescent glass globes from 16 to 24 inches in diameter, \$60.00 to \$100.00 each, in black finish.

No. 826. Ornamental wrought iron bracket and lantern, with bevel plate glass, 12 to 24 inch lantern, \$80.00 to \$100.00, in black.

No. 827. Wall lantern, from 3 to 5 feet, from \$100.00 to \$240.00.

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

No. 828. Porch lantern, 1 to 2 feet, with double strength crystalline glass, \$30.00 to \$40.00 each, in black finish.

No. 829. Bracket lantern, 3 to 5 feet, plate glass, \$80.00 to \$160.00, in black finish.

Nos. 1850, 1851 and 1852. Heavy wrought steel hinge plates; 18 inches long, \$16.00 per pair; 24 inches long, \$20.00 per pair; 30 inches long, \$24.00 per pair, in black finish.

We also furnish any of same in brass or copper, at a slight advance. Special designs made to order.

STRENGTH OF WHITE PINE STRUTS OR PILLARS. Continued.

| Length in feet. | Dimensions of Cross-Sections in Ins. Safe load in tons of 2000 lbs. | | | | | | |
|--------------------|--|------|------|------|-------|-------|-------|
| | 11x6 | 11x7 | 11x8 | 11x9 | 11x10 | 11x11 | 11x12 |
| 12..... | 18.0 | 21.0 | 24.0 | 27.0 | 30.0 | 33.0 | 36.0 |
| 13..... | 16.9 | 19.7 | 26.6 | 25.4 | 28.2 | 31.0 | 33.8 |
| 14..... | 16.0 | 18.7 | 21.0 | 24.0 | 26.8 | 29.4 | 32.0 |
| 15..... | 15.4 | 17.9 | 20.4 | 23.0 | 25.6 | 28.1 | 30.8 |
| 16..... | 14.7 | 17.2 | 19.6 | 22.0 | 24.6 | 26.9 | 29.4 |
| 17..... | 14.2 | 16.5 | 18.8 | 21.2 | 23.6 | 25.9 | 28.4 |
| 18..... | 13.5 | 15.8 | 18.0 | 20.3 | 22.6 | 24.9 | 27.0 |
| 19..... | 13.0 | 15.2 | 17.4 | 19.5 | 21.8 | 23.9 | 26.0 |
| 20..... | 12.5 | 14.6 | 16.8 | 18.8 | 21.0 | 23.0 | 25.0 |
| 21..... | 12.0 | 14.0 | 16.0 | 18.0 | 20.0 | 22.0 | 24.0 |
| 22..... | 11.6 | 13.5 | 15.4 | 17.4 | 19.4 | 21.2 | 23.2 |
| 23..... | 11.2 | 13.0 | 14.8 | 16.7 | 18.6 | 20.5 | 22.4 |
| 24..... | 10.8 | 12.6 | 14.4 | 16.2 | 18.0 | 19.8 | 21.6 |

(Continued on page 120)



No. 828



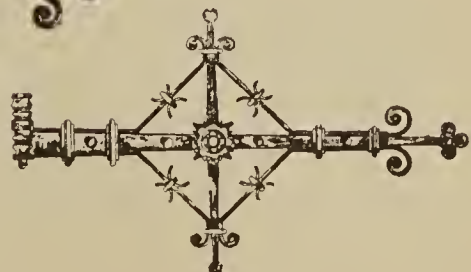
No. 829



No. 1850



No. 1851



No. 1852

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

The following pages are devoted to a few designs of the most favorite antique fixtures and trimmings for Mission style homes. Workmanship and finish are of the most artistic, and can be made entirely of wrought iron, brass, burned or hammered copper finish. Special designs submitted upon request.

No. 830. Nine light chandelier, 30 inches in diameter, 4 by 8 inch lanterns, all iron and copper combination, \$100.00 each.

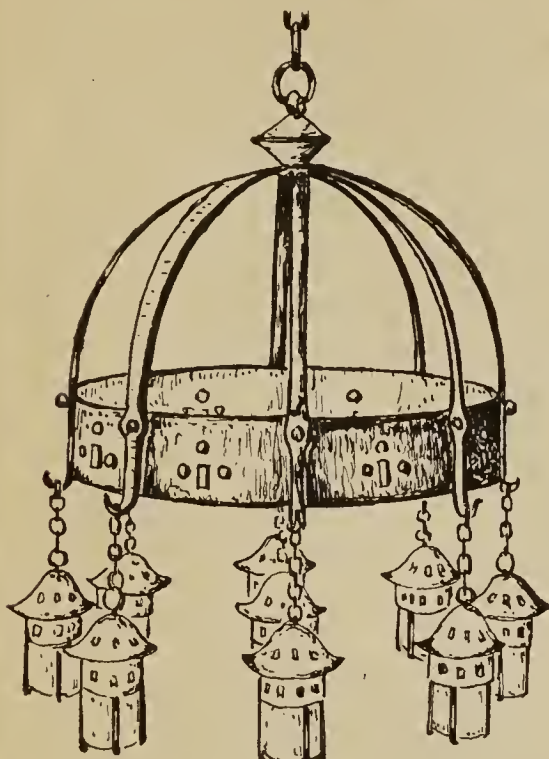
No. 831. Lantern, 8 to 15 inches, with opalescent glass, from \$8.00 up, according to sizes and number desired.

No. 832. Twelve-light candle chandelier, \$30.00 each.

No. 833. Same lantern as No. 831, with bracket and chain, \$3.00 extra.

STRENGTH OF WHITE PINE STRUTS OR PILLARS. Continued.

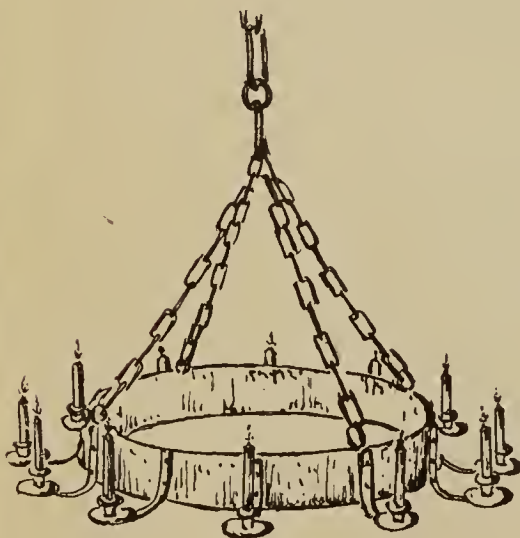
| Length in feet. | Dimensions of Cross-Sections in Ins. Safe load in tons of 2000 lbs. | | | | | | |
|--------------------|--|------|------|------|-------|-------|-------|
| | 12x6 | 12x7 | 12x8 | 12x9 | 12x10 | 12x11 | 12x12 |
| 12..... | 21.0 | 24.5 | 28.0 | 31.5 | 35.0 | 38.5 | 42.0 |
| 13..... | 19.9 | 23.2 | 26.4 | 29.8 | 33.2 | 36.4 | 39.7 |
| 14..... | 18.8 | 21.9 | 25.0 | 28.1 | 31.4 | 34.4 | 37.6 |
| 15..... | 17.9 | 20.9 | 23.8 | 26.8 | 29.8 | 32.8 | 35.8 |
| 16..... | 17.1 | 20.0 | 22.8 | 25.7 | 28.6 | 31.4 | 34.2 |
| 17..... | 16.4 | 19.1 | 21.8 | 24.6 | 27.4 | 30.0 | 32.7 |
| 18..... | 15.7 | 18.3 | 21.0 | 23.6 | 26.2 | 28.8 | 31.4 |
| 19..... | 15.1 | 17.6 | 20.2 | 22.7 | 25.2 | 27.7 | 30.2 |
| 20..... | 14.6 | 17.0 | 19.4 | 21.9 | 24.4 | 26.7 | 29.2 |
| 21..... | 14.1 | 16.5 | 18.8 | 21.2 | 23.6 | 25.8 | 28.2 |
| 22..... | 13.6 | 15.9 | 18.2 | 20.5 | 22.8 | 25.0 | 27.2 |
| 23..... | 13.1 | 15.3 | 17.4 | 19.6 | 21.8 | 24.0 | 26.2 |
| 24..... | 12.6 | 14.7 | 16.8 | 18.9 | 21.0 | 23.1 | 25.2 |



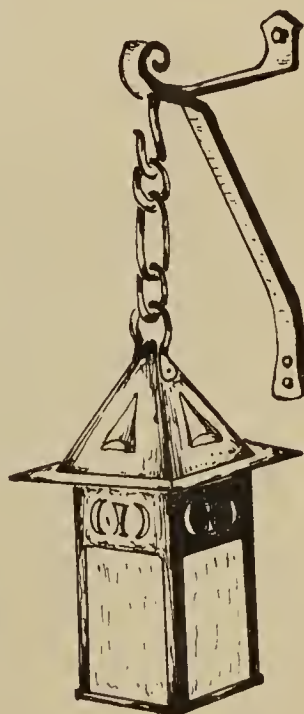
No. 830



No. 831



No. 832



No. 833

No. 834. Four lights, 8-inch lanterns, from \$60.00 up, according to size of lanterns and number required. In copper, \$75.00 and up.

No. 835. Eight inch lantern, from \$12.00 up, according to size and number required. In copper, from \$15.00 up.

No. 836. Candle bracket, with 11 by 3 inch wall plate, 5 inches to center of light from wall, \$4.00 each in black finish. In copper, \$5.00

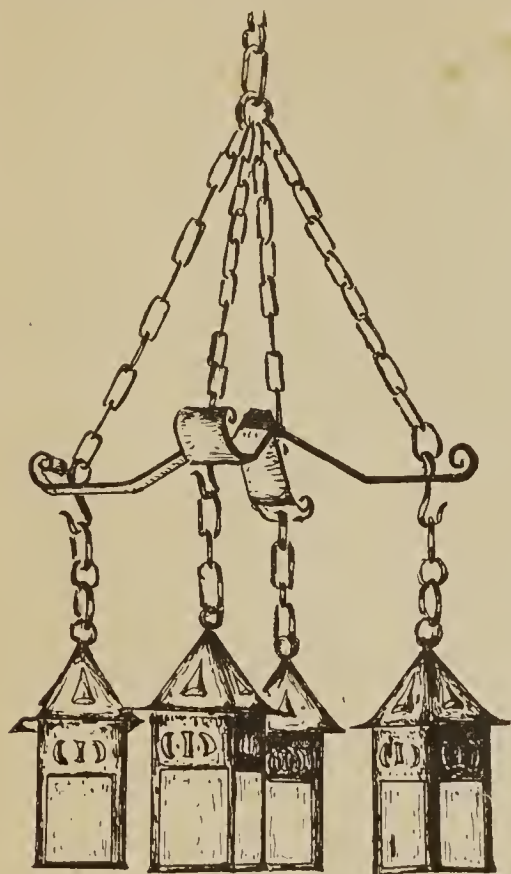
No. 837. Wrought iron bracket lantern, in black finish, medium weight; 8 inches, \$16.00; 10 inches, \$20.00; 12 inches, \$24.00. Measures are sizes of lanterns in height. Glass furnished in any fixture to suit customer.

TABLE OF SAFE LOADS.

Safe Load, Uniformly Distributed, for White Pine Beams, Supported at Both Ends, in Tons of 2000 Lbs.

| Beams 6 Inches Deep | | | | | Beams 7 Inches Deep | | | | | |
|-----------------------|---------|-------|-------|-------|-----------------------|---------|-------|-------|-------|-------|
| Cl'r span in feet. | Breadth | | | | Cl'r span in feet. | Breadth | | | | |
| | 3 in. | 4 in. | 5 in. | 6 in. | | 3 in. | 4 in. | 5 in. | 6 in. | 7 in. |
| 2 | 3. | 4. | 5. | 6. | 2 | 4.1 | 5.4 | 6.8 | 8.2 | 9.5 |
| 3 | 2. | 2.7 | 3.3 | 4. | 3 | 2.7 | 3.6 | 4.5 | 5.4 | 6.3 |
| 4 | 1.5 | 2. | 2.5 | 3. | 4 | 2.1 | 2.7 | 3.4 | 4.1 | 4.6 |
| 5 | 1.2 | 1.6 | 2. | 2.4 | 5 | 1.6 | 2.2 | 2.7 | 3.2 | 3.8 |
| 6 | 1. | 1.3 | 1.6 | 2. | 6 | 1.4 | 1.8 | 2.2 | 2.7 | 3.1 |
| 7 | .84 | 1.1 | 1.4 | 1.7 | 7 | 1.2 | 1.5 | 1.9 | 2.3 | 2.7 |
| 8 | .73 | .98 | 1.2 | 1.5 | 8 | 1. | 1.3 | 1.7 | 2. | 2.3 |
| 9 | .64 | .86 | 1.1 | 1.3 | 9 | .88 | 1.2 | 1.5 | 1.8 | 2.1 |
| 10 | .58 | .77 | .96 | 1.2 | 10 | .79 | 1.1 | 1.3 | 1.6 | 1.8 |
| 11 | .52 | .7 | .87 | 1.1 | 11 | .7 | .93 | 1.2 | 1.4 | 1.6 |
| 12 | .49 | .63 | .79 | .95 | 12 | .65 | .86 | 1.1 | 1.3 | 1.5 |
| 14 | .39 | .53 | .66 | .79 | 14 | .55 | .73 | .91 | 1.1 | 1.3 |
| 16 | .34 | .46 | .56 | .68 | 16 | .47 | .62 | .78 | .94 | 1.1 |
| 18 | .28 | .4 | .49 | .59 | 18 | .41 | .54 | .67 | .82 | .95 |

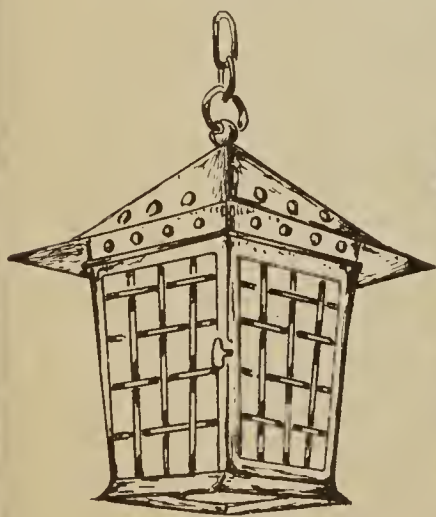
(Continued on page 124)



No. 834



No. 836



No. 835



No. 837

No. 838. Double bracket lantern; 8 inch lanterns, \$24.00 each, in black. Larger sizes at proportionate prices. In copper throughout, at a slight advance.

No. 839. Lantern with perforated sides, no glass; 8 inch lantern. \$4.00 each; 10 inch, \$5.00; 12 inch, \$6.00. With copper ring and rivets, 60c extra.

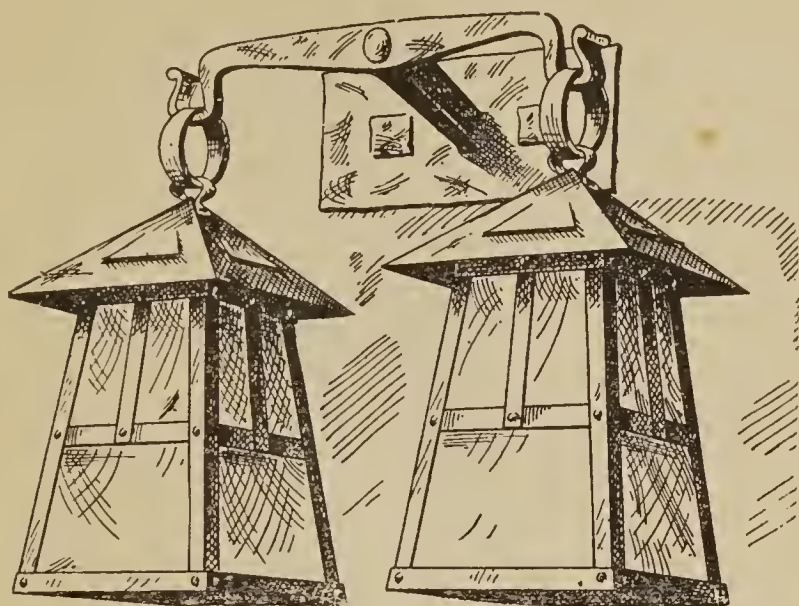
TABLE OF SAFE LOADS—Continued.

Safe Live Load, Uniformly Distributed, for White Pine Beams,
Supported at Both Ends, in Tons of 2000 Lbs.

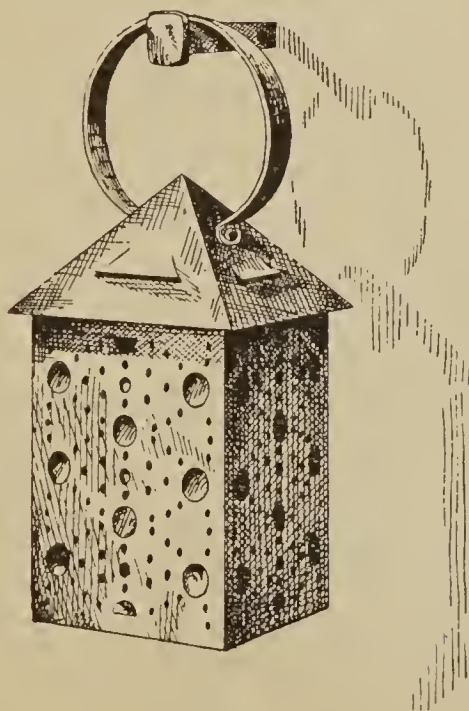
Beams 8 Inches Deep.

| Clear span in feet. | Breadth. | | | | | |
|------------------------|----------|-------|-------|-------|-------|-------|
| | 3 in. | 4 in. | 5 in. | 6 in. | 7 in. | 8 in. |
| 3 | 3.5 | 4.7 | 5.9 | 7.1 | 8.3 | 9.5 |
| 4 | 2.7 | 3.5 | 4.4 | 5.3 | 6.2 | 7.1 |
| 5 | 2.1 | 2.8 | 3.5 | 4.2 | 4.9 | 5.6 |
| 6 | 1.8 | 2.4 | 2.9 | 3.5 | 4.1 | 4.7 |
| 7 | 1.5 | 2. | 2.5 | 3. | 3.5 | 4. |
| 8 | 1.3 | 1.8 | 2.2 | 2.6 | 3. | 3.5 |
| 9 | 1.2 | 1.6 | 1.9 | 2.3 | 2.7 | 3.1 |
| 10 | 1. | 1.4 | 1.7 | 2.1 | 2.4 | 2.8 |
| 11 | .92 | 1.3 | 1.6 | 1.9 | 2.2 | 2.5 |
| 12 | .84 | 1.1 | 1.4 | 1.7 | 2. | 2.3 |
| 14 | .71 | 1. | 1.2 | 1.4 | 1.7 | 1.9 |
| 16 | .6 | .82 | 1. | 1.2 | 1.4 | 1.6 |
| 18 | .52 | .72 | .9 | 1.1 | 1.3 | 1.4 |
| 20 | .45 | .63 | .8 | .9 | 1.1 | 1.3 |
| 22 | .42 | .52 | .7 | .8 | .1 | 1.1 |

(Continued on page 126)



No. 838



No. 839

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

TABLE OF SAFE LOADS—Continued.

Safe Load, Uniformly Distributed, for White Pine Beams, Supported at Both Ends, in Tons of 2000 Lbs.

Beams 9 Inches Deep.

| Clear span in feet. | Breadth. | | | | | | |
|------------------------|----------|-------|-------|-------|-------|-------|-------|
| | 3 in. | 4 in. | 5 in. | 6 in. | 7 in. | 8 in. | 9 in. |
| 3..... | 4.5 | 6. | 7.5 | 9. | 10.5 | 12. | 13.5 |
| 4..... | 3.4 | 4.5 | 5.6 | 6.7 | 7.8 | 9. | 10.1 |
| 5..... | 2.7 | 3.6 | 4.5 | 5.4 | 6.3 | 7.2 | 8.1 |
| 6..... | 2.2 | 3. | 3.7 | 4.5 | 5.2 | 5.9 | 6.4 |
| 7..... | 1.9 | 2.5 | 3.2 | 3.8 | 4.4 | 5.1 | 5.7 |
| 8..... | 1.7 | 2.2 | 2.8 | 3.3 | 3.9 | 4.4 | 5. |
| 9..... | 1.5 | 2. | 2.4 | 2.9 | 3.4 | 3.9 | 4.4 |
| 10..... | 1.3 | 1.8 | 2.2 | 2.6 | 3.1 | 3.5 | 4. |
| 11..... | 1.2 | 1.6 | 2. | 2.4 | 2.8 | 3.2 | 3.6 |
| 12..... | 1.1 | 1.4 | 1.8 | 2.2 | 2.5 | 2.9 | 3.3 |
| 14..... | .92 | 1.2 | 1.5 | 1.8 | 2.1 | 2.4 | 2.8 |
| 16..... | .8 | 1. | 1.3 | 1.6 | 1.8 | 2.1 | 2.4 |
| 18..... | .68 | .91 | 1.1 | 1.4 | 1.6 | 1.8 | 2. |
| 20..... | .61 | .81 | 1. | 1.2 | 1.4 | 1.6 | 2.8 |
| 22..... | .54 | .72 | .9 | 1.1 | 1.2 | 1.4 | 1.6 |

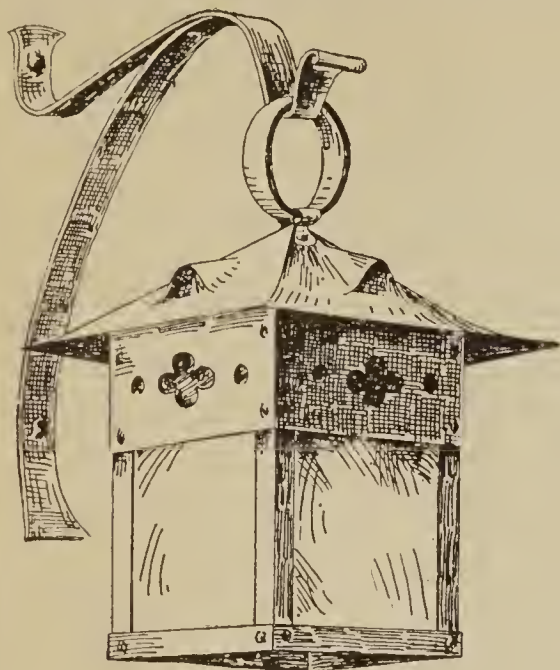
Beams 10 Inches Deep.

| Clear span in feet. | Breadth. | | | | | | |
|------------------------|----------|-------|-------|-------|-------|-------|--------|
| | 4 in. | 5 in. | 6 in. | 7 in. | 8 in. | 9 in. | 10 in. |
| 4..... | 5.5 | 6.9 | 8.3 | 9.7 | 11.1 | 12.4 | 13.8 |
| 5..... | 4.4 | 5.5 | 6.6 | 7.7 | 8.8 | 9.9 | 11. |
| 6..... | 3.7 | 4.6 | 5.5 | 6.4 | 7.3 | 8.3 | 9.2 |
| 7..... | 3.1 | 3.9 | 4.7 | 5.5 | 6.3 | 7.1 | 7.9 |
| 8..... | 2.7 | 3.4 | 4.1 | 4.8 | 5.5 | 6. | 6.8 |
| 9..... | 2.4 | 3. | 3.6 | 4.2 | 4.8 | 5.4 | 6. |
| 10..... | 2.2 | 2.7 | 3.3 | 3.8 | 4.3 | 4.9 | 5.4 |
| 11..... | 2. | 2.5 | 2.9 | 3.4 | 3.9 | 4.4 | 4.9 |
| 12..... | 1.8 | 2.2 | 2.7 | 3.1 | 3.6 | 4. | 4.5 |
| 14..... | 1.5 | 1.9 | 2.3 | 2.7 | 3. | 3.2 | 3.8 |
| 16..... | 1.3 | 1.6 | 2. | 2.3 | 2.6 | 2.9 | 3.3 |
| 18..... | 1.1 | 1.4 | 1.7 | 2. | 2.3 | 2.6 | 2.8 |
| 20..... | 1. | 1.3 | 1.5 | 1.8 | 2. | 2.3 | 2.5 |
| 22..... | .9 | 1.1 | 1.3 | 1.6 | 1.8 | 2. | 2.2 |
| 24..... | .8 | 1. | 1.1 | 1.4 | 1.6 | 1.8 | 2. |

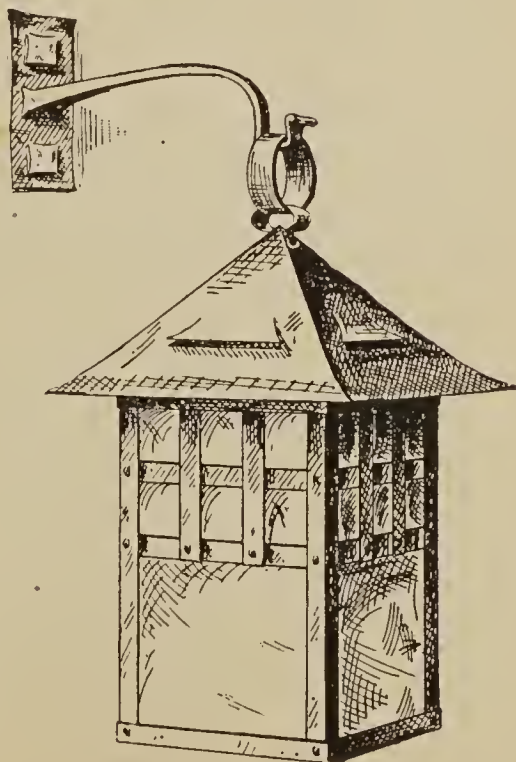
Beams 11 Inches Deep.

| Clear span in feet. | Breadth. | | | | | | |
|------------------------|----------|-------|-------|-------|-------|--------|--------|
| | 5 in. | 6 in. | 7 in. | 8 in. | 9 in. | 10 in. | 11 in. |
| 4..... | 8.4 | 10.1 | 12.7 | 13.4 | 15.1 | 16.7 | 18.4 |
| 5..... | 6.7 | 8. | 9.4 | 10.7 | 12. | 13.4 | 14.7 |
| 6..... | 5.6 | 6.7 | 7.8 | 8.9 | 10. | 11.1 | 12.2 |
| 7..... | 4.8 | 5.7 | 6.7 | 7.6 | 8.6 | 9.5 | 10.5 |
| 8..... | 4.1 | 5. | 5.8 | 6.6 | 7.5 | 8.3 | 9.1 |
| 9..... | 3.7 | 4.4 | 5.1 | 5.9 | 6.6 | 7.3 | 8.1 |
| 10..... | 3.3 | 4. | 4.6 | 5.3 | 5.9 | 6.6 | 7.2 |
| 11..... | 3. | 3.6 | 4.2 | 4.8 | 5.4 | 6. | 6.6 |
| 12..... | 2.7 | 3.3 | 3.8 | 4.4 | 4.9 | 5.4 | 6. |
| 14..... | 2.4 | 2.8 | 3.2 | 3.7 | 4.1 | 4.6 | 5.1 |
| 16..... | 2. | 2.4 | 2.8 | 3.3 | 3.6 | 4. | 4.4 |
| 18..... | 1.7 | 2.1 | 2.4 | 2.8 | 3.2 | 3.5 | 3.8 |
| 20..... | 1.5 | 1.9 | 2.2 | 2.5 | 2.8 | 3.1 | 3.4 |
| 22..... | 1.4 | 1.7 | 1.9 | 2.2 | 2.5 | 2.8 | 3. |
| 24..... | 1.2 | 1.5 | 1.7 | 2. | 2.2 | 2.5 | 2.7 |

(Continued on page 128)



No. 840. Lantern and bracket, with 8 inch lantern, \$12.00; larger sizes in proportion according to size of lanterns and number required.



No. 841. Lantern and bracket, with 8 inch lantern, \$15.00 each; larger sizes in proportion according to size of lanterns and number required.

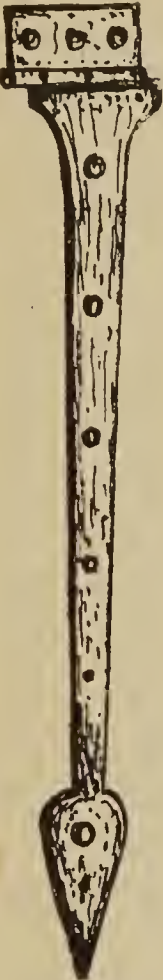
Antique wrought iron hinge straps, with iron or copper nails; the real iron monger's make. Per pair, 16 inches, \$4.00; 13 inches, \$5.00; 20 inches, \$6.00; 24 inches, \$8.00. Finished in burned black. Larger sizes or special patterns made to order.

TABLE OF SAFE LOADS—Continued.

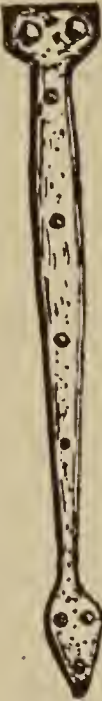
Safe Load, Uniformly Distributed, for White Pine Beams, Supported at Both Ends, in Tons of 2000 Lbs.
Beams 12 Inches Deep.

| Clear span in feet. | Breadth. | | | | | | | | | |
|------------------------|----------|----------|----------|----------|----------|----------|----------|-----------|-----------|-----------|
| | 3 in. | 4 in. | 5 in. | 6 in. | 7 in. | 8 in. | 9 in. | 10 in. | 11 in. | 12 in. |
| 6..... | 4. | 5.3 | 6.6 | 7.9 | 9.3 | 10.6 | 11.9 | 13.2 | 14.6 | 15.9 |
| 7..... | 3.4 | 4.5 | 5.7 | 6.8 | 7.9 | 9.1 | 10.2 | 11.3 | 12.5 | 13.6 |
| 8..... | 3. | 4. | 4.9 | 5.9 | 6.9 | 7.9 | 8.9 | 9.9 | 10.9 | 11.8 |
| 9..... | 2.6 | 3.5 | 4.4 | 5.3 | 6.1 | 7. | 7.9 | 8.8 | 9.7 | 10.5 |
| 10..... | 2.4 | 3.1 | 3.9 | 4.7 | 5.5 | 6.3 | 7.1 | 7.8 | 8.6 | 9.4 |
| 11..... | 2.1 | 2.8 | 3.6 | 4.3 | 5. | 5.7 | 6.4 | 7.1 | 7.8 | 8.6 |
| 12..... | 1.9 | 2.6 | 3.2 | 3.9 | 4.5 | 5.2 | 5.8 | 6.5 | 7.1 | 7.8 |
| 14..... | 1.6 | 2.2 | 2.8 | 3.3 | 3.9 | 4.4 | 5. | 5.5 | 6.1 | 6.6 |
| 16..... | 1.4 | 1.9 | 2.4 | 2.9 | 3.3 | 3.8 | 4.3 | 4.8 | 5.2 | 5.7 |
| 18..... | 1.3 | 1.7 | 2.1 | 2.5 | 2.9 | 3.3 | 3.8 | 4.2 | 4.6 | 5. |
| 20..... | 1.1 | 1.5 | 1.9 | 2.2 | 2.6 | 3. | 3.4 | 3.7 | 4.1 | 4.4 |
| 22..... | 1. | 1.3 | 1.7 | 2. | 2.3 | 2.6 | 3. | 3.3 | 3.6 | 4. |
| 24..... | .9 | 1.2 | 1.5 | 1.8 | 2.1 | 2.4 | 2.7 | 3. | 3.3 | 3.6 |
| 26..... | .8 | 1.1 | 1.3 | 1.6 | 1.9 | 2.2 | 2.4 | 2.7 | 3. | 3.2 |
| 28..... | .7 | 1. | 1.2 | 1.5 | 1.7 | 1.9 | 2.2 | 2.4 | 2.7 | 2.9 |

(Continued on page 130)



No. 1853



No. 1854



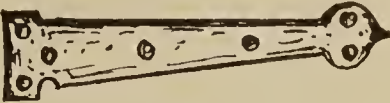
No. 1856



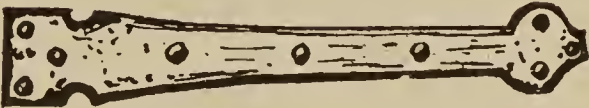
No. 1858



No. 1857



No. 1855



No. 1860



No. 1859



No. 1861

House trimmings, made of antique forged wrought iron with copper combination in burned or black finish. Send numbers and lists for estimates.

TABLE OF SAFE LOADS—Continued.

Safe Load, Uniformly Distributed, for White Pine Beams, Supported at Both Ends, in Tons of 2000 Lbs.
Beams 13 Inches Deep.

| Clear span in feet. | Breadth. | | | | | | | | | | | |
|------------------------|----------|----------|----------|----------|----------|----------|----------|-----------|-----------|-----------|-----------|--|
| | 3 in. | 4 in. | 5 in. | 6 in. | 7 in. | 8 in. | 9 in. | 10 in. | 11 in. | 12 in. | 13 in. | |
| 6..... | 4.7 | 6.2 | 7.8 | 9.3 | 10.9 | 12.4 | 14. | 15.5 | 17.1 | 18.6 | 20.2 | |
| 7..... | 4. | 5.4 | 6.7 | 8.1 | 9.4 | 10.7 | 12.1 | 13.4 | 14.8 | 16.1 | 17.4 | |
| 8..... | 3.5 | 4.6 | 5.8 | 7. | 8.1 | 9.8 | 10.4 | 11.6 | 12.8 | 13.9 | 15.1 | |
| 9..... | 3.1 | 4.1 | 5.1 | 6.2 | 7.2 | 8.2 | 9.3 | 10.3 | 11.3 | 12.3 | 13.4 | |
| 10..... | 2.8 | 3.7 | 4.6 | 5.5 | 6.5 | 7.4 | 8.3 | 9.2 | 10.1 | 11.1 | 12. | |
| 11..... | 2.5 | 3.3 | 4.2 | 5. | 5.8 | 6.7 | 7.5 | 8.4 | 9.2 | 10. | 10.9 | |
| 12..... | 2.3 | 3.1 | 3.8 | 4.6 | 5.3 | 6.1 | 6.9 | 7.6 | 8.4 | 9.2 | 9.9 | |
| 14..... | 1.9 | 2.6 | 3.2 | 3.9 | 4.5 | 5.2 | 5.8 | 6.5 | 7.1 | 7.8 | 8.4 | |
| 16..... | 1.7 | 2.2 | 2.8 | 3.4 | 3.9 | 4.5 | 5. | 5.6 | 6.2 | 6.7 | 7.3 | |
| 18..... | 1.5 | 2. | 2.5 | 3. | 3.4 | 3.9 | 4.4 | 4.9 | 5.4 | 5.9 | 6.4 | |
| 20..... | 1.3 | 1.7 | 2.2 | 2.6 | 3.1 | 3.5 | 3.9 | 4.4 | 4.8 | 5.2 | 5.7 | |
| 22..... | 1.2 | 1.6 | 2. | 2.3 | 2.7 | 3.1 | 3.5 | 3.9 | 4.3 | 4.7 | 5.1 | |
| 24..... | 1.1 | 1.4 | 1.8 | 2.1 | 2.5 | 2.8 | 3.2 | 3.5 | 3.9 | 4.2 | 4.6 | |
| 26..... | 1. | 1.3 | 1.6 | 1.9 | 2.2 | 2.6 | 2.9 | 3.2 | 3.5 | 3.8 | 4.1 | |
| 28..... | .9 | 1.2 | 1.5 | 1.7 | 2. | 2.3 | 2.6 | 2.9 | 3.2 | 3.5 | 3.8 | |

(Continued on page 132)



No. 1862



No. 1863



No. 1864



No. 1865



No. 1866



No. 1867



No. 1869



No. 1868



No. 1870



No. 1871



No. 1872



No. 1863

Hand hammered steel or copper plaques, of No. 16 sheet metal
Nos. 1874 and 1876 are 16 inches in diameter, in steel, \$10.00
each; in copper, \$12.00 each. No. 1875, 16 inches in diameter,
in steel, \$12.00; in copper, \$16.00.

Special designs made to order.

TABLE OF SAFE LOADS—Continued.

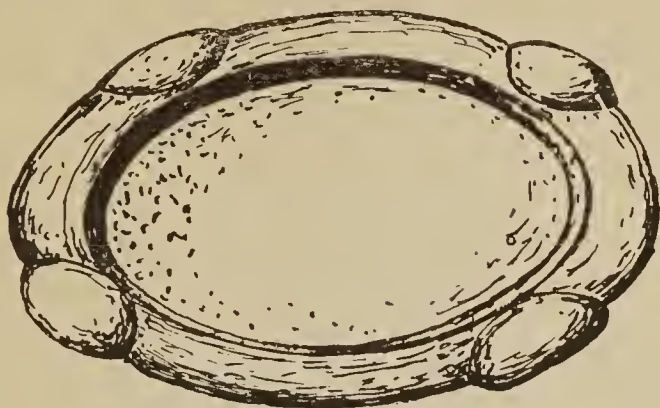
Safe Load, Uniformly Distributed, for White Pine Beams, Sup-
ported at Both Ends, in Tons of 2000 Lbs.

Beams 14 Inches Deep.

| Clear span in feet. | Breadth. | | | | | |
|------------------------|----------|-------|-------|-------|-------|-------|
| | 3 in. | 4 in. | 5 in. | 6 in. | 7 in. | 8 in. |
| 6..... | 5.4 | 7.2 | 9. | 10.8 | 12.6 | 14.4 |
| 7..... | 4.6 | 6.2 | 7.7 | 9.2 | 10.8 | 12.3 |
| 8..... | 4. | 5.4 | 6.7 | 8.1 | 9.4 | 10.8 |
| 9..... | 3.6 | 4.8 | 6. | 7.2 | 8.3 | 9.5 |
| 10..... | 3.3 | 4.3 | 5.4 | 6.5 | 7.5 | 8.6 |
| 11..... | 2.9 | 3.9 | 4.8 | 5.8 | 6.8 | 7.8 |
| 12..... | 2.7 | 3.5 | 4.4 | 5.3 | 6.2 | 7.1 |
| 14..... | 2.3 | 3. | 3.8 | 4.5 | 5.3 | 6. |
| 16..... | 2. | 2.6 | 3.3 | 3.9 | 4.6 | 5.2 |
| 18..... | 1.8 | 2.3 | 2.9 | 3.5 | 4.1 | 4.7 |
| 20..... | 1.5 | 2. | 2.5 | 3.1 | 3.6 | 4.1 |
| 22..... | 1.4 | 1.8 | 2.3 | 2.7 | 3.2 | 3.6 |
| 24..... | 1.2 | 1.6 | 2.1 | 2.5 | 2.9 | 3.3 |
| 26..... | 1.1 | 1.5 | 1.9 | 2.2 | 2.6 | 3. |
| 28..... | 1. | 1.4 | 1.7 | 2. | 2.4 | 2.7 |

| | Breadth. | | | | | |
|---------|----------|--------|--------|--------|--------|--------|
| | 9 in. | 10 in. | 11 in. | 12 in. | 13 in. | 14 in. |
| 6..... | 16.2 | 18. | 19.8 | 21.6 | 23.4 | 25.2 |
| 7..... | 13.9 | 15.4 | 16.9 | 18.5 | 20. | 21.5 |
| 8..... | 12.1 | 13.2 | 14.8 | 16.1 | 17.5 | 18.8 |
| 9..... | 10.7 | 11.9 | 13.1 | 14.3 | 15.5 | 16.7 |
| 10..... | 9.7 | 10.7 | 11.8 | 12.9 | 14. | 15. |
| 11..... | 8.7 | 9.7 | 10.7 | 11.6 | 12.6 | 13.6 |
| 12..... | 8. | 8.9 | 9.7 | 10.6 | 11.5 | 12.4 |
| 14..... | 6.8 | 7.5 | 8.3 | 9. | 9.8 | 10.5 |
| 16..... | 5.9 | 6.5 | 7.2 | 7.8 | 8.5 | 9.1 |
| 18..... | 5.3 | 5.9 | 6.5 | 7.1 | 7.6 | 8.2 |
| 20..... | 4.6 | 5.1 | 5.6 | 6.1 | 6.6 | 7.1 |
| 22..... | 4.1 | 4.6 | 5. | 5.5 | 5.9 | 6.4 |
| 24..... | 3.7 | 4.1 | 4.5 | 4.9 | 5.3 | 5.8 |
| 26..... | 3.4 | 3.7 | 4.1 | 4.5 | 4.8 | 5.2 |
| 28..... | 3.1 | 3.4 | 3.7 | 4.1 | 4.4 | 4.8 |

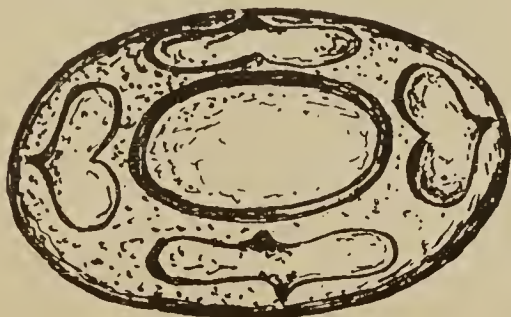
(Continued on page 134)



No. 1874



No. 1875



No. 1876

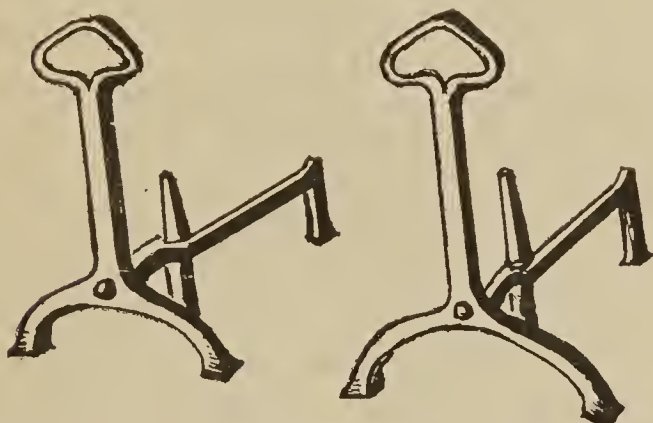
TABLE OF SAFE LOADS—Continued.

Safe Load, Uniformly Distributed, for White Pine Beams, Supported at Both Ends, in Tons of 2000 Lbs.
Beams 15 Inches Deep.

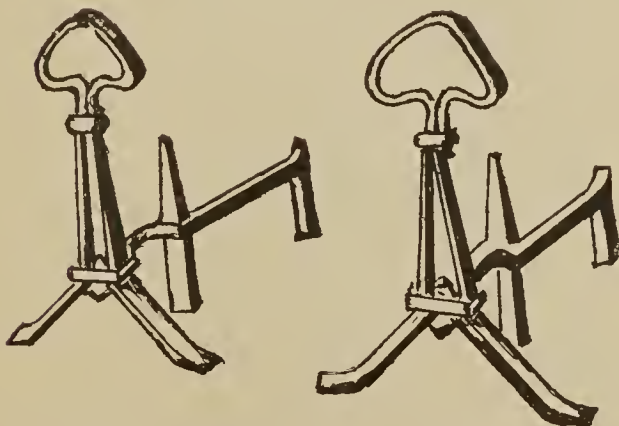
| Clear span in feet. | Breadth. | | | | | |
|------------------------|----------|-------|-------|-------|-------|-------|
| | 3 in. | 4 in. | 5 in. | 6 in. | 7 in. | 8 in. |
| 6..... | 6.2 | 8.3 | 10.4 | 12.4 | 14.5 | 16.6 |
| 7..... | 5.2 | 7. | 8.7 | 10.5 | 12.2 | 14. |
| 8..... | 4.6 | 6.2 | 7.7 | 9.3 | 10.8 | 12.4 |
| 9..... | 4.1 | 5.4 | 6.8 | 8.2 | 9.5 | 10.9 |
| 10..... | 3.7 | 4.9 | 6.2 | 7.4 | 8.6 | 9.8 |
| 11..... | 3.3 | 4.5 | 5.6 | 6.7 | 7.8 | 8.9 |
| 12..... | 3.1 | 4.1 | 5.1 | 6.1 | 7.1 | 8.2 |
| 14..... | 2.6 | 3.4 | 4.3 | 5.2 | 6.1 | 7. |
| 16..... | 2.3 | 3. | 3.8 | 4.5 | 5.3 | 6. |
| 18..... | 2. | 2.6 | 3.3 | 3.9 | 4.6 | 5.2 |
| 20..... | 1.8 | 2.4 | 2.9 | 3.5 | 4.1 | 4.7 |
| 22..... | 1.6 | 2.1 | 2.6 | 3.2 | 3.7 | 4.1 |
| 24..... | 1.4 | 1.9 | 2.4 | 2.9 | 3.3 | 3.8 |
| 26..... | 1.3 | 1.7 | 2.2 | 2.6 | 3. | 3.5 |
| 28..... | 1.2 | 1.6 | 1.9 | 2.3 | 2.7 | 3.1 |

| Clear span in feet. | Breadth. | | | | | | |
|------------------------|----------|--------|--------|--------|--------|--------|--------|
| | 9 in. | 10 in. | 11 in. | 12 in. | 13 in. | 14 in. | 15 in. |
| 6..... | 18.6 | 20.7 | 22.8 | 24.9 | 26.9 | 29. | 31.1 |
| 7..... | 15.7 | 17.5 | 19.2 | 21. | 22.7 | 24.5 | 26.2 |
| 8..... | 13.9 | 15.5 | 17. | 18.6 | 20.1 | 21.7 | 23.2 |
| 9..... | 12.3 | 13.6 | 15. | 16.3 | 17.7 | 19.1 | 20.4 |
| 10..... | 11.1 | 12.3 | 13.5 | 14.8 | 16. | 17.2 | 18.5 |
| 11..... | 10. | 11.2 | 12.3 | 13.4 | 14.5 | 15.6 | 16.7 |
| 12..... | 9.2 | 10.2 | 11.2 | 12.2 | 13.2 | 14.3 | 15.3 |
| 14..... | 7.9 | 8.7 | 9.6 | 10.5 | 11.4 | 12.3 | 13.1 |
| 16..... | 6.8 | 7.5 | 8.3 | 9. | 9.8 | 10.5 | 11.3 |
| 18..... | 5.9 | 6.5 | 7.2 | 7.9 | 8.5 | 9.2 | 9.8 |
| 20..... | 5.3 | 5.9 | 6.5 | 7.1 | 7.6 | 8.2 | 8.8 |
| 22..... | 4.6 | 5.2 | 5.7 | 6.2 | 6.7 | 7.3 | 7.8 |
| 24..... | 4.3 | 4.8 | 5.2 | 5.7 | 6.2 | 6.7 | 7.1 |
| 26..... | 3.9 | 4.3 | 4.7 | 5.2 | 5.6 | 6. | 6.5 |
| 28..... | 3.5 | 3.9 | 4.3 | 4.7 | 5. | 5.4 | 5.8 |

(Continued on page 136)



No. 502. Hand forged fire dogs, 18 inches high, 20 inch legs,
Per set, \$16.00.



No. 503. Same size as No. 502, \$20.00 per pair.

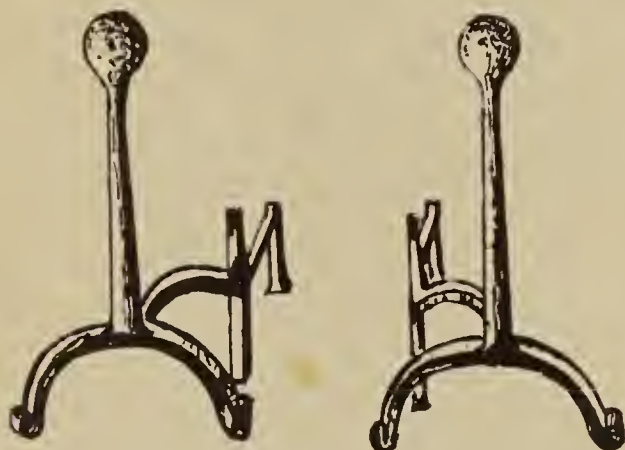
TABLE OF SAFE LOADS—Concluded.

Safe Load, Uniformly Distributed, for White Pine Beams, Supported at Both Ends, in Tons of 2000 Lbs.

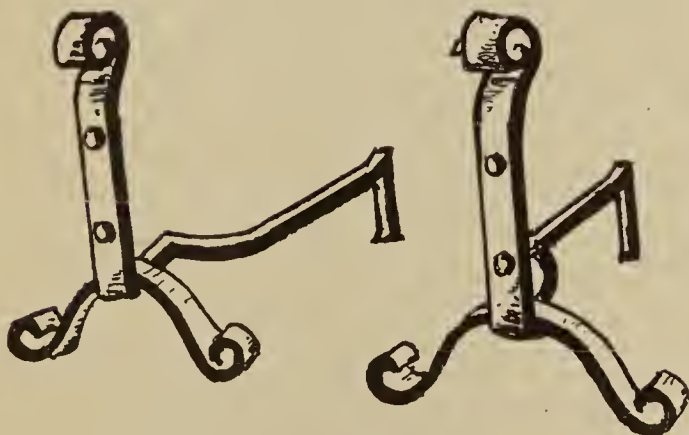
Beams 16 Inches Deep.

| Clear span in feet. | Breadth. | | | | | | |
|------------------------|----------|-------|-------|-------|-------|-------|-------|
| | 3 in. | 4 in. | 5 in. | 6 in. | 7 in. | 8 in. | 9 in. |
| 6..... | 7.1 | 9.4 | 11.8 | 14.1 | 16.5 | 18.9 | 21.2 |
| 7..... | 6.1 | 8.1 | 10.1 | 12.1 | 14.1 | 16.1 | 18.1 |
| 8..... | 5.3 | 7. | 8.8 | 10.6 | 12.3 | 14.1 | 15.8 |
| 9..... | 4.7 | 6.2 | 7.8 | 9.4 | 10.9 | 12.5 | 14.1 |
| 10..... | 4.2 | 5.6 | 7. | 8.4 | 9.8 | 11.2 | 12.6 |
| 11..... | 3.8 | 5.1 | 6.4 | 7.6 | 8.9 | 10.2 | 11.4 |
| 12..... | 3.5 | 4.6 | 5.8 | 7. | 8.1 | 9.3 | 10.4 |
| 14..... | 3. | 3.9 | 4.9 | 5.9 | 6.9 | 7.9 | 8.9 |
| 16..... | 2.6 | 3.4 | 4.3 | 5.1 | 6. | 6.8 | 7.7 |
| 18..... | 2.3 | 3. | 3.8 | 4.5 | 5.3 | 6. | 6.8 |
| 20..... | 2. | 2.7 | 3.4 | 4. | 4.7 | 5.4 | 6. |
| 22..... | 1.8 | 2.4 | 3. | 3.6 | 4.2 | 4.8 | 5.4 |
| 24..... | 1.6 | 2.2 | 2.7 | 3.3 | 3.8 | 4.3 | 4.9 |
| 26..... | 1.5 | 2. | 2.5 | 3. | 3.5 | 3.9 | 4.4 |
| 28..... | 1.4 | 1.8 | 2.3 | 2.7 | 3.2 | 3.6 | 4.1 |

| Clear span in feet. | Breadth. | | | | | | |
|------------------------|----------|--------|--------|--------|--------|--------|--------|
| | 10 in. | 11 in. | 12 in. | 13 in. | 14 in. | 15 in. | 16 in. |
| 6..... | 23.6 | 25.9 | 28.3 | 30.6 | 33. | 35.4 | 37.7 |
| 7..... | 20.2 | 22.2 | 24.2 | 26.2 | 28.2 | 30.2 | 32.3 |
| 8..... | 17.6 | 19.4 | 21.1 | 22.9 | 24.7 | 26.4 | 28.2 |
| 9..... | 15.6 | 17.2 | 18.7 | 20.3 | 21.9 | 23.4 | 25. |
| 10..... | 14. | 15.4 | 16.8 | 18.2 | 19.6 | 21. | 22.4 |
| 11..... | 12.7 | 14. | 15.2 | 16.5 | 17.8 | 19.1 | 20.3 |
| 12..... | 11.6 | 12.8 | 13.9 | 15.1 | 16.2 | 17.4 | 18.6 |
| 14..... | 9.9 | 10.9 | 11.8 | 12.8 | 13.8 | 14.8 | 15.8 |
| 16..... | 8.6 | 9.4 | 10.3 | 11.1 | 12. | 12.8 | 13.7 |
| 18..... | 7.5 | 8.3 | 9. | 9.8 | 10.5 | 11.3 | 12. |
| 20..... | 6.7 | 7.4 | 8. | 8.7 | 9.4 | 10.1 | 10.7 |
| 22..... | 6. | 6.6 | 7.2 | 7.8 | 8.4 | 9. | 9.6 |
| 24..... | 5.4 | 6. | 6.5 | 7.1 | 7.6 | 8.1 | 8.7 |
| 26..... | 4.9 | 5.4 | 5.9 | 6.4 | 6.9 | 7.4 | 7.9 |
| 28..... | 4.5 | 5. | 5.4 | 5.9 | 6.3 | 6.8 | 7.2 |



No. 504. Two feet high, \$24.00 per pair.



No. 505. 15 inches high, \$10.00 per pair.

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

No. 506. Fire dogs, 2 feet high, \$30.00 per pair.

Special designs and sizes made to order.

No. 507. Fire set, \$36.00. All hand wrought, hand hammered or smooth finish.

Nos. 508 to 512. Fire place frames in black iron, with burnt copper nails, or solid copper and brass, from \$6.00 to \$12.00 each. Also without nail heads, from \$4.00 up.

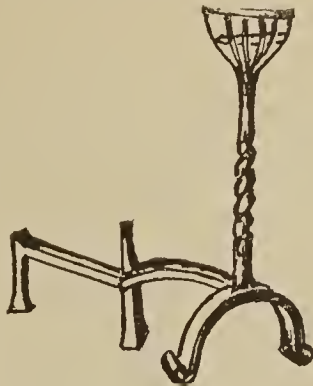
BEAMS.

Safe Load, Uniformly Distributed for J. & L. Steel Co.'s Steel Beams, in Tons of 2000 Lbs.

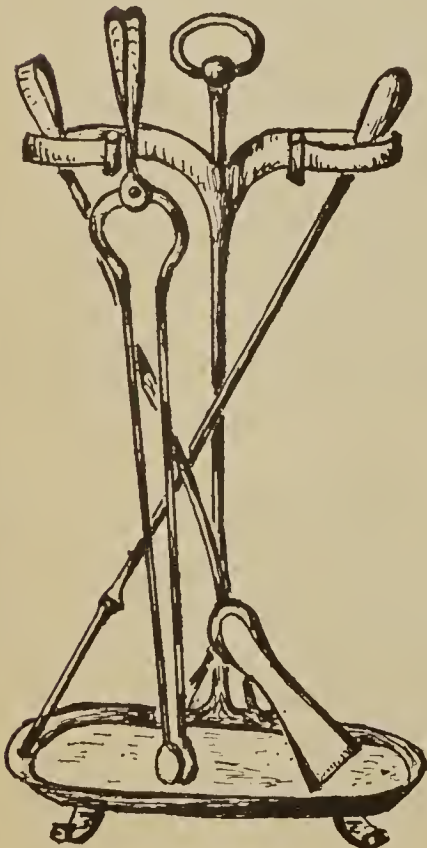
| Distance in feet between supports. | 24-Inch Beam, Standard. | | | | |
|------------------------------------|-------------------------|---------|---------|---------|---------|
| | 100 lbs. | 95 lbs. | 90 lbs. | 85 lbs. | 80 lbs. |
| 10..... | 105.32 | 102.18 | 99.04 | 95.90 | 92.76 |
| 11..... | 95.74 | 92.89 | 90.04 | 87.18 | 84.33 |
| 12..... | 87.76 | 85.15 | 82.53 | 79.92 | 77.30 |
| 13..... | 81.01 | 78.60 | 76.18 | 73.77 | 71.36 |
| 14..... | 75.23 | 72.99 | 70.74 | 68.50 | 66.26 |
| 15..... | 70.21 | 68.12 | 66.03 | 63.93 | 61.84 |
| 16..... | 65.82 | 63.86 | 61.90 | 59.90 | 57.97 |
| 17..... | 61.95 | 60.10 | 58.26 | 56.41 | 54.57 |
| 18..... | 58.51 | 56.76 | 55.02 | 53.28 | 51.53 |
| 19..... | 55.42 | 53.78 | 52.13 | 50.47 | 48.82 |
| 20..... | 52.66 | 51.09 | 49.52 | 47.95 | 46.38 |
| 21..... | 50.15 | 48.66 | 47.16 | 45.67 | 44.17 |
| 22..... | 47.87 | 46.44 | 45.02 | 43.59 | 42.16 |
| 23..... | 45.79 | 44.43 | 43.06 | 41.69 | 40.33 |
| 24..... | 43.88 | 42.57 | 41.27 | 39.96 | 38.65 |
| 25..... | 42.13 | 40.87 | 39.62 | 38.36 | 37.11 |
| 26..... | 40.51 | 39.30 | 38.09 | 36.88 | 35.68 |
| 27..... | 39.01 | 37.84 | 36.68 | 35.52 | 34.36 |
| 28..... | 37.61 | 36.49 | 35.37 | 34.25 | 33.13 |
| 29..... | 36.31 | 35.23 | 34.15 | 33.07 | 31.99 |
| 30..... | 35.11 | 34.06 | 33.01 | 31.97 | 30.92 |
| 31..... | 33.97 | 32.96 | 31.95 | 30.94 | 29.92 |
| 32..... | 32.91 | 31.93 | 30.95 | 29.97 | 28.93 |
| 33..... | 31.91 | 30.96 | 30.01 | 29.06 | 28.11 |
| 34..... | 30.98 | 30.05 | 29.13 | 28.20 | 27.28 |
| 35..... | 30.09 | 29.19 | 28.30 | 27.40 | 26.50 |
| 36..... | 29.25 | 28.38 | 27.51 | 26.64 | 25.76 |

Safe load includes weight of Beam, Maximum fiber strain of 16,000 lbs. per square inch.

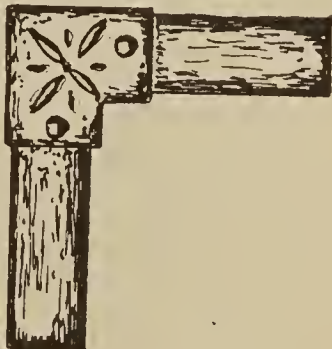
(Continued on page 140)



No. 506



No. 507



No. 508



No. 509

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

No. 513. Spark guards, made to order, of heavy wire screen; sizes up to 3 feet by 3 feet and 6 inches, \$8.00 each.

No. 514. Fender with four leaves, 12 by 24 inches, finished in black and trimmed with brass ornaments, \$16.00; with 3 leaves, \$14.00.

Special trimmings and fire place fixtures made to order, and we will cheerfully submit designs for same.

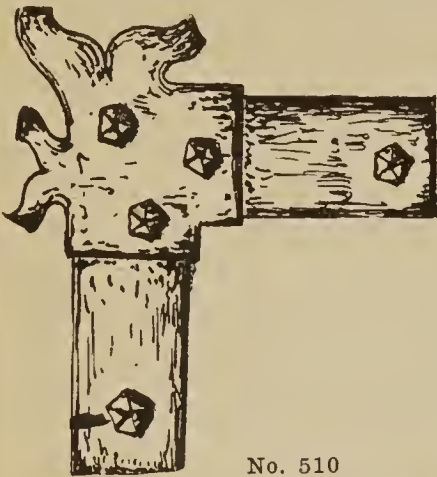
BEAMS—Continued.

Safe Load, Uniformly Distributed for J. & L. Steel Co.'s Steel Beams, in Tons of 2000 Lbs.

| Distance in feet between supports. | 20-Inch Beam, Heavy Section. | | | | |
|------------------------------------|------------------------------|---------|---------|---------|---------|
| | 100 lbs. | 95 lbs. | 90 lbs. | 85 lbs. | 80 lbs. |
| 10..... | 88.66 | 86.05 | 83.43 | 80.82 | 78.21 |
| 11..... | 80.59 | 78.22 | 75.84 | 73.47 | 71.10 |
| 12..... | 73.88 | 71.70 | 69.53 | 67.35 | 65.17 |
| 13..... | 68.20 | 66.19 | 64.18 | 62.17 | 60.16 |
| 14..... | 63.33 | 61.46 | 59.59 | 57.73 | 55.86 |
| 15..... | 59.11 | 57.36 | 55.62 | 53.88 | 52.14 |
| 16..... | 55.41 | 53.78 | 52.15 | 50.51 | 48.88 |
| 17..... | 52.15 | 50.61 | 49.08 | 47.54 | 46.00 |
| 18..... | 49.25 | 47.80 | 46.35 | 44.90 | 43.45 |
| 19..... | 46.66 | 45.29 | 43.91 | 42.54 | 41.16 |
| 20..... | 44.33 | 43.02 | 41.72 | 40.41 | 39.10 |
| 21..... | 42.22 | 40.97 | 39.70 | 38.49 | 37.24 |
| 22..... | 40.30 | 39.11 | 37.93 | 36.74 | 35.55 |
| 23..... | 38.55 | 37.41 | 36.28 | 35.14 | 34.00 |
| 24..... | 36.94 | 35.85 | 34.76 | 33.68 | 32.59 |
| 25..... | 35.46 | 34.42 | 33.37 | 32.33 | 31.28 |
| 26..... | 34.10 | 33.09 | 32.09 | 31.08 | 30.08 |
| 27..... | 32.83 | 31.87 | 30.90 | 29.93 | 28.97 |
| 28..... | 31.66 | 30.73 | 29.80 | 28.87 | 27.93 |
| 29..... | 30.57 | 29.67 | 28.77 | 27.87 | 26.97 |
| 30..... | 29.55 | 28.68 | 27.81 | 26.94 | 26.07 |
| 31..... | 28.60 | 27.76 | 26.91 | 26.07 | 25.23 |
| 32..... | 27.70 | 26.89 | 26.07 | 25.25 | 24.44 |

Safe load includes weight of Beam, Maximum fiber strain of 16,000 lbs. per square inch.

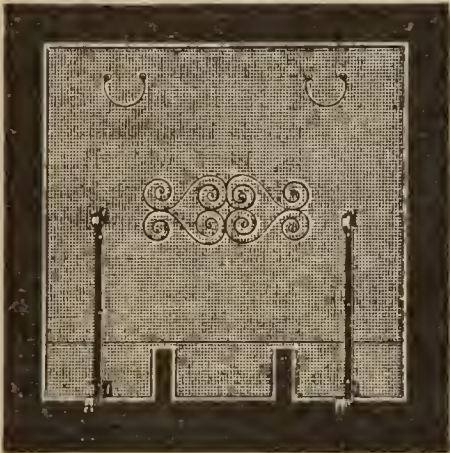
(Continued on page 142)



No. 510



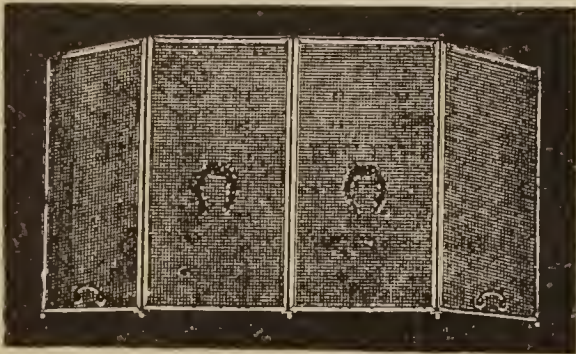
No. 511



No. 513



No. 512



Wrought iron crestings and finials. The up to date builder has long abandoned the old style cast iron crestings and finials. commonly used some years ago, and concluded that the best is the cheapest by far, so in an ornament which is exposed to all kinds of weather. The following pages show a few of the popular designs which we manufacture and are substantially built to correspond with their respective sizes.

No. 309. 12 inches high, \$1.00; 15 inches high, \$1.20; 18 inches high, \$1.40; 20 inches high, \$1.60 per lineal foot. Finials to match, \$2.40 each.

No. 310. 12 inches high, 60c; 18 inches high, 80c per lineal foot. Finials, \$1.60 each.

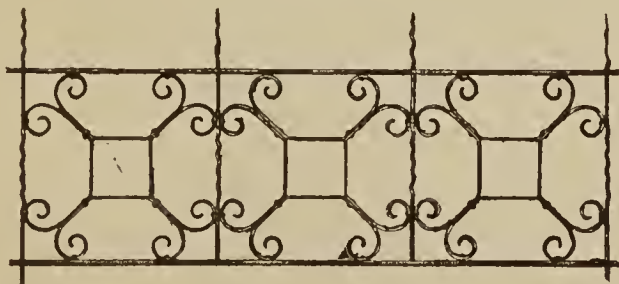
No. 311. 12 inches high, \$1.00; 15 inches high, \$1.20; 18 inches high, \$1.60 per lineal foot. Finials to match, \$2.00.



No. 309



No. 310



No. 311

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

No. 312. 18 inches high, \$1.60; 20 inches high, \$2.00; 24 inches high, \$2.40 per lineal foot. Finials to match, \$2.40 each.

No. 313. 15 inches high, \$1.20; 18 inches high, \$1.60 per lineal foot; 21 inches high, \$1.80 per lineal foot. Finials, \$2.00 each.

No. 314. 18 inches high, \$1.20; 20 inches high, \$1.60; 24 inches high, \$1.80 per lineal foot. Finials, \$2.00 each.

No. 308. 18 inches high, \$1.40; 20 inches high, \$1.60; 24 inches high, \$2.00 per lineal foot. Finials, \$2.00 each.

No. 307. Same prices as No. 308.

BEAMS—Continued.

Safe Load, Uniformly Distributed for J. & L. Steel Co.'s Steel Beams, in Tons of 2000 Lbs.

| Distance in feet between supports. | 20-Inch Beam, Standard. | | |
|---|-------------------------|---------|---------|
| | 75 lbs. | 70 lbs. | 65 lbs. |
| 10 | 68.13 | 65.51 | 62.90 |
| 11 | 61.93 | 59.56 | 57.18 |
| 12 | 56.82 | 54.59 | 52.41 |
| 13 | 52.40 | 50.39 | 48.38 |
| 14 | 48.66 | 46.79 | 44.93 |
| 15 | 45.42 | 43.67 | 41.93 |
| 16 | 42.58 | 40.94 | 39.31 |
| 17 | 40.07 | 38.54 | 37.00 |
| 18 | 37.85 | 36.40 | 34.94 |
| 19 | 35.86 | 34.48 | 33.10 |
| 20 | 34.06 | 32.76 | 31.45 |
| 21 | 32.44 | 31.20 | 29.95 |
| 22 | 30.97 | 29.78 | 28.59 |
| 23 | 29.62 | 28.48 | 27.35 |
| 24 | 28.41 | 27.29 | 26.21 |
| 25 | 27.25 | 26.20 | 25.16 |
| 26 | 26.20 | 25.19 | 24.19 |
| 27 | 25.23 | 24.26 | 23.29 |
| 28 | 24.33 | 23.45 | 22.46 |
| 29 | 23.49 | 22.59 | 21.69 |
| 30 | 22.71 | 21.83 | 20.97 |
| 31 | 21.98 | 21.13 | 20.29 |
| 32 | 21.29 | 20.47 | 19.66 |

Safe load includes weight of Beam, Maximum fiber strain of 16,000 lbs. per square inch.

(Continued on page 146)

SPOKANE ORNAMENTAL IRON & WIRE WORKS.



No. 312



No. 313



No. 314



No. 308



No. 307

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

Wrought iron vanes and finials, built to last, and finished in black with genuine gold leaf trimmings.

No. 354. 6 to 8 feet high, \$30.00 each.

No. 355. 4 feet high, \$10.00 each.

No. 356. 4 foot vane. \$18.00 each.

No. 357. Galvanized iron hood or caps to fit steeple top; made to order, 3 feet long, \$10.00 each.

BEAMS—Continued.

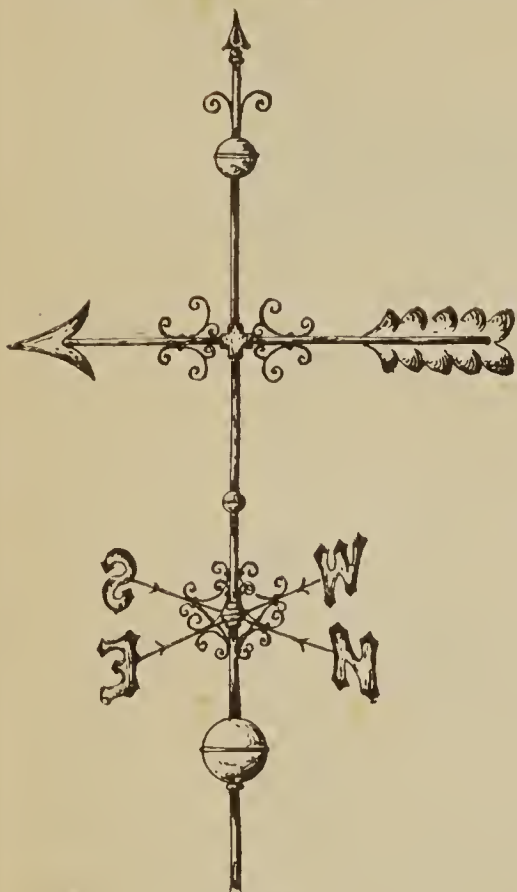
Safe Load, Uniformly Distributed for J. & L. Steel Co.'s Steel Beams, in Tons of 2000 Lbs.

| Distance between supports in feet. | 18 inch I. | | | |
|------------------------------------|------------|---------|---------|---------|
| | 70 lbs. | 65 lbs. | 60 lbs. | 55 lbs. |
| 10 | 54.52 | 52.16 | 49.80 | 47.06 |
| 11 | 49.56 | 47.42 | 45.27 | 42.78 |
| 12 | 45.43 | 43.47 | 41.50 | 39.22 |
| 13 | 41.94 | 40.12 | 38.30 | 36.20 |
| 14 | 38.94 | 37.26 | 35.57 | 33.62 |
| 15 | 36.34 | 34.77 | 33.20 | 31.38 |
| 16 | 34.07 | 32.60 | 31.12 | 29.42 |
| 17 | 32.07 | 30.68 | 29.29 | 27.63 |
| 18 | 30.29 | 28.98 | 27.66 | 26.14 |
| 19 | 28.70 | 27.46 | 26.21 | 24.77 |
| 20 | 26.26 | 26.08 | 24.90 | 23.52 |
| 21 | 25.97 | 24.84 | 23.71 | 22.41 |
| 22 | 24.78 | 23.71 | 22.63 | 21.39 |
| 23 | 23.70 | 22.68 | 21.65 | 20.46 |
| 24 | 22.71 | 21.73 | 20.75 | 19.61 |
| 25 | 21.81 | 20.86 | 19.92 | 18.82 |
| 26 | 20.79 | 20.06 | 19.15 | 18.10 |
| 27 | 20.19 | 19.32 | 18.44 | 17.43 |
| 28 | 19.47 | 18.63 | 17.78 | 16.81 |
| 29 | 18.80 | 17.99 | 17.17 | 16.23 |
| 30 | 18.17 | 17.39 | 16.60 | 15.69 |

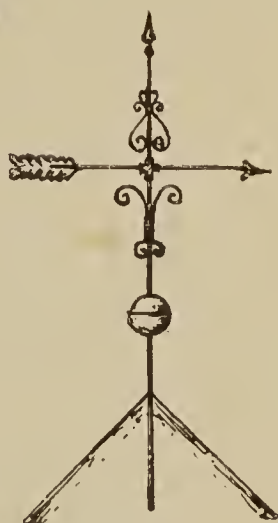
Safe load includes weight of Beam, Maximum fiber strain of 16,000 lbs. per square inch.

(Continued on page 148)

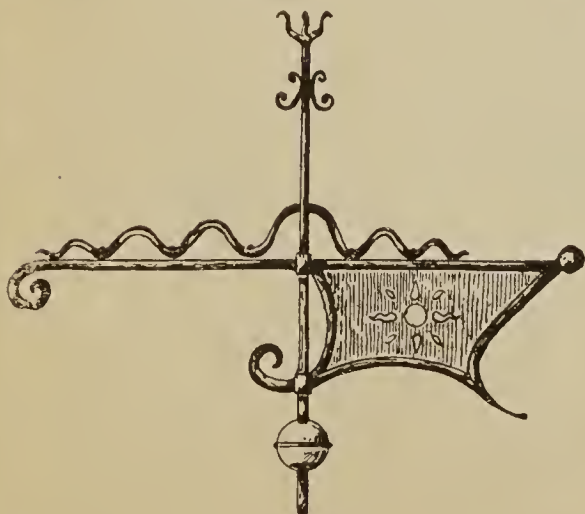
SPOKANE ORNAMENTAL IRON & WIRE WORKS.



No. 354



No. 355



No. 356



No. 357

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

No. 358. Horse vane, 3 feet 6 inches long, swell bodied copper vane, genuine gold leaf finished, \$50.00 each.

No. 359. Five point star, 9 inches, \$5.00; 12 inches, \$6.00; 15 inches, \$8.00; 18 inches, \$12.00; 24 inches, \$18.00 each.

No. 360. Spun metal balls, with stem, in genuine gold leaf finish. 3 inches, 80c; 4 inches, \$1.20; 5 inches, \$1.60; 6 inches, \$2.20; 7 inches, \$3.60; 8 inches, \$4.00; 9 inches, \$7.00; 10 inches, \$8.00; 12 inches, \$15.00.

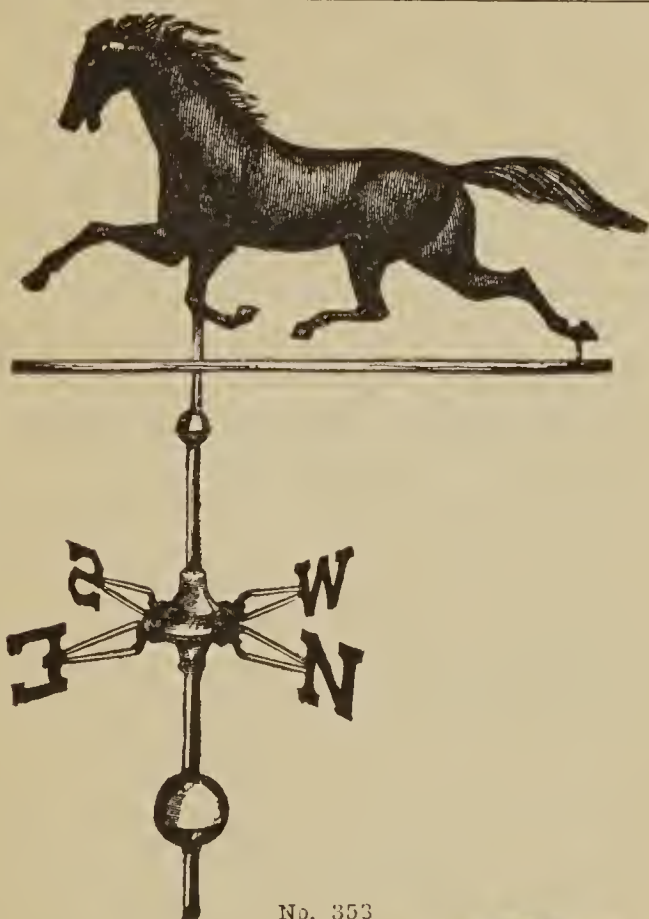
BEAMS—Continued.

Safe Load, Uniformly Distributed for J. & L. Steel Co.'s Steel Beams, in Tons of 2000 Lbs.

| Distance between supports in feet. | 15 inch I. | | | | | |
|---|------------|---------|---------|---------|---------|---------|
| | 80 lbs. | 70 lbs. | 60 lbs. | 50 lbs. | 45 lbs. | 42 lbs. |
| 10..... | 51.15 | 47.23 | 38.47 | 34.55 | 32.59 | 31.41 |
| 11..... | 46.50 | 42.93 | 34.97 | 31.41 | 29.63 | 28.56 |
| 12..... | 42.62 | 39.36 | 32.06 | 28.79 | 27.16 | 26.18 |
| 13..... | 39.35 | 36.33 | 29.59 | 26.58 | 25.07 | 24.16 |
| 14..... | 36.54 | 33.73 | 27.48 | 24.68 | 23.28 | 22.44 |
| 15..... | 34.10 | 31.49 | 25.65 | 23.03 | 21.73 | 20.94 |
| 16..... | 31.97 | 29.52 | 24.04 | 21.59 | 20.37 | 19.63 |
| 17..... | 30.09 | 27.78 | 22.63 | 20.32 | 19.17 | 18.48 |
| 18..... | 28.42 | 26.24 | 21.37 | 19.19 | 18.10 | 17.45 |
| 19..... | 26.92 | 24.86 | 20.25 | 18.18 | 17.15 | 16.53 |
| 20..... | 25.57 | 23.61 | 19.23 | 17.26 | 16.29 | 15.71 |
| 21..... | 24.36 | 22.49 | 18.32 | 16.45 | 15.52 | 14.96 |
| 22..... | 23.25 | 21.47 | 17.49 | 15.70 | 14.81 | 14.28 |
| 23..... | 22.24 | 20.53 | 16.73 | 15.02 | 14.17 | 13.66 |
| 24..... | 21.31 | 19.68 | 16.03 | 14.40 | 13.58 | 13.09 |
| 25..... | 20.46 | 18.89 | 15.39 | 13.82 | 13.04 | 12.56 |
| 26..... | 19.67 | 18.16 | 14.80 | 13.29 | 12.53 | 12.08 |
| 27..... | 18.95 | 17.49 | 14.24 | 12.80 | 12.07 | 11.63 |
| 28..... | 18.27 | 16.87 | 13.74 | 12.34 | 11.64 | 11.22 |
| 29..... | 17.64 | 16.29 | 13.26 | 11.91 | 11.24 | 10.83 |
| 30..... | 17.05 | 15.74 | 12.82 | 11.52 | 10.86 | 10.47 |

Safe load includes weight of Beam. Maximum fiber strain of 16,000 lbs. per square inch.

(Continued on page 150)



No. 353



No. 359



No. 360

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

No. 361. Finial, 5 to 7 feet high, wrought iron, finished in black, trimmed with genuine gold leaf, \$36.00 each.

No. 362. Wrought iron tower cross, 5 to 7 feet high; same finish as No. 361, \$20.00 each.

No. 353. Wrought iron finial, 5 to 6 feet high; same finish as above, \$30.00 each.

No. 363. Copper eagles, on ball and base or ball and stem for flag poles; genuine gold leaf finish. 6 inches, \$5.00; 12 inches, \$10.00; 15 inches, \$15.00; 18 inches, \$18.00; 24 inches, \$22.00; 30 inches, \$32.00; 36 inches, \$40.00; 42 inches, \$48.00; 48 inches, \$64.00 each.

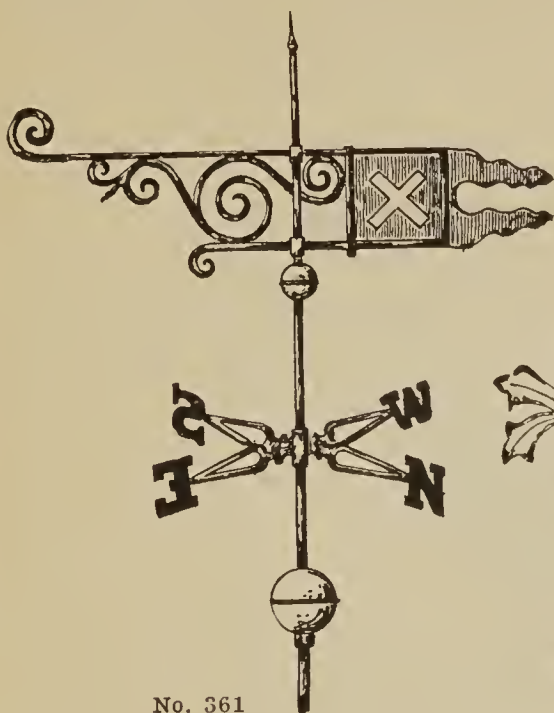
BEAMS—Continued.

Safe Load, Uniformly Distributed for J. & L. Steel Co.'s Steel Beams, in Tons of 2000 Lbs.

| Distance between supports in feet. | 12 inch I. | | | | | |
|---|------------|---------|---------|---------|---------|-----------|
| | 55 lbs. | 50 lbs. | 45 lbs. | 40 lbs. | 35 lbs. | 31.5 lbs. |
| 10..... | 28.61 | 27.04 | 25.48 | 21.85 | 20.28 | 19.18 |
| 11..... | 26.01 | 24.58 | 23.16 | 19.86 | 18.44 | 17.44 |
| 12..... | 23.84 | 22.54 | 21.23 | 18.21 | 16.90 | 15.99 |
| 13..... | 22.01 | 20.80 | 19.60 | 16.81 | 15.60 | 14.76 |
| 14..... | 20.44 | 19.32 | 18.20 | 15.62 | 14.49 | 13.70 |
| 15..... | 19.08 | 18.03 | 16.98 | 14.56 | 13.52 | 12.79 |
| 16..... | 17.88 | 16.90 | 15.92 | 13.66 | 12.68 | 11.99 |
| 17..... | 16.83 | 15.91 | 14.99 | 12.85 | 11.93 | 11.28 |
| 18..... | 15.90 | 15.02 | 14.15 | 12.14 | 11.27 | 10.66 |
| 19..... | 15.06 | 14.23 | 13.41 | 11.50 | 10.62 | 10.10 |
| 20..... | 14.31 | 13.52 | 12.74 | 10.93 | 10.14 | 9.59 |
| 21..... | 13.63 | 12.88 | 12.13 | 10.41 | 9.66 | 9.14 |
| 22..... | 13.01 | 12.29 | 11.58 | 9.93 | 9.22 | 8.72 |
| 23..... | 12.44 | 11.76 | 11.08 | 9.50 | 8.82 | 8.34 |
| 24..... | 11.92 | 11.27 | 10.61 | 9.10 | 8.45 | 7.99 |
| 25..... | 11.45 | 10.82 | 10.19 | 8.75 | 8.11 | 7.67 |
| 26..... | 11.01 | 10.40 | 9.80 | 8.40 | 7.80 | 7.38 |
| 27..... | 10.60 | 10.02 | 9.43 | 8.09 | 7.51 | 7.10 |
| 28..... | 10.22 | 9.66 | 9.10 | 7.81 | 7.24 | 6.85 |
| 29..... | 9.87 | 9.33 | 8.78 | 7.53 | 6.99 | 6.62 |
| 30..... | 9.54 | 9.01 | 8.48 | 7.28 | 6.76 | 6.39 |

Safe load includes weight of Beam, Maximum fiber strain of 16,000 lbs. per square inch.

(Continued on page 152)



No. 361



No. 353



No. 362



No. 363

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

No. 364. Eagle vane, 15 inch spread, \$30.00 each; 20 inch spread, \$36.00 each.

No. 365. Cross, 5 to 7 feet high, \$20.00 each.

No. 366. Rooster instead of eagle vane, same mounting as No. 364; 18 inches high, 24 inch arrow, double thickness copper, \$18.00; 30 inch arrow, \$22.00 each.

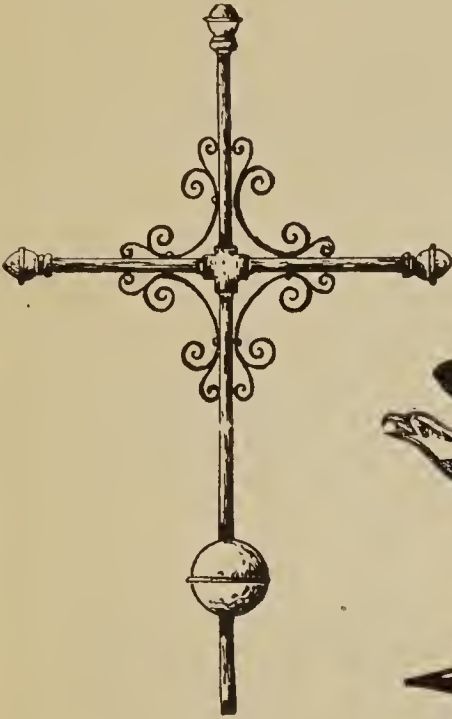
BEAMS—Continued.

Safe Load, Uniformly Distributed for J. & L. Steel Co.'s Steel Beams, in Tons of 2000 Lbs.

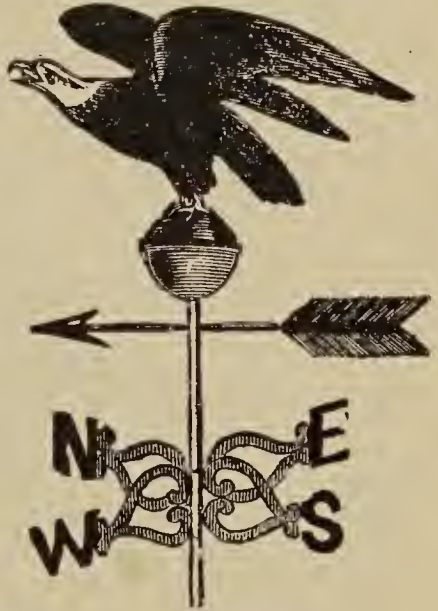
| Distance between supports in feet. | 10 inch I. | | | |
|---|------------|---------|---------|---------|
| | 40 lbs. | 35 lbs. | 30 lbs. | 25 lbs. |
| 10 | 16.94 | 15.64 | 14.33 | 13.02 |
| 11 | 15.40 | 14.22 | 13.03 | 11.85 |
| 12 | 14.12 | 13.03 | 11.94 | 10.85 |
| 13 | 13.03 | 12.03 | 11.02 | 10.02 |
| 14 | 12.10 | 11.17 | 10.24 | 9.30 |
| 15 | 11.30 | 10.42 | 9.55 | 8.68 |
| 16 | 10.59 | 9.77 | 8.96 | 8.14 |
| 17 | 9.97 | 9.20 | 8.43 | 7.66 |
| 18 | 9.41 | 8.69 | 7.96 | 7.24 |
| 19 | 8.92 | 8.23 | 7.54 | 6.85 |
| 20 | 8.47 | 7.82 | 7.16 | 6.51 |
| 21 | 8.07 | 7.45 | 6.82 | 6.20 |
| 22 | 7.71 | 7.11 | 6.51 | 5.92 |
| 23 | 7.37 | 6.80 | 6.23 | 5.66 |
| 24 | 7.06 | 6.52 | 5.97 | 5.43 |
| 25 | 6.78 | 6.25 | 5.73 | 5.21 |
| 26 | 6.52 | 6.01 | 5.51 | 5.01 |
| 27 | 6.27 | 5.79 | 5.31 | 4.82 |
| 28 | 6.05 | 5.58 | 5.12 | 4.65 |
| 29 | 5.83 | 5.39 | 4.94 | 4.49 |
| 30 | 5.65 | 5.21 | 4.77 | 4.34 |

Safe load includes weight of Beam, Maximum fiber strain of 16,000 lbs. per square inch.

(Continued on page 154)



No. 365



No. 364



No. 366

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

No. 1900. Stall guard, extra heavy, with $1\frac{1}{4}$ by $\frac{1}{2}$ inch channel frames, $2\frac{1}{4}$ inch mesh, No. 8 hard crimped wire, 60c per square foot; measures estimated in the full square.

No. 1901. Square O. G. end, stall guard.

No. 1902. Water trough, fitted with safety overflow and plug outlet, coupling 25 by 15 by 12 inches deep, \$6.00 each.

No. 1903. With high back, \$7.50 each.

No. 1905. Cast iron hay rack, full half or corner, \$2.40 each.

No. 1904. Wrought iron feed rack, full half or corner, \$3.00 each.

No. 1906. Stall gutter, $5\frac{1}{2}$ inches wide, $1\frac{1}{4}$ inches deep, in 4 feet to 4 feet 6 inch lengths, with or without cutlet spout and connecting lip, 40c per lineal foot.

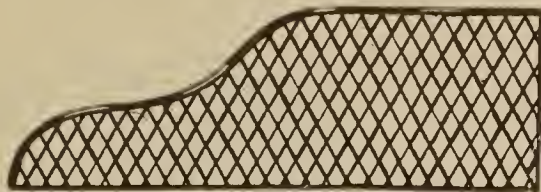
BEAMS—Continued.

Safe Load, Uniformly Distributed for J. & L. Steel Co.'s Steel Beams, in Tons of 2000 Lbs.

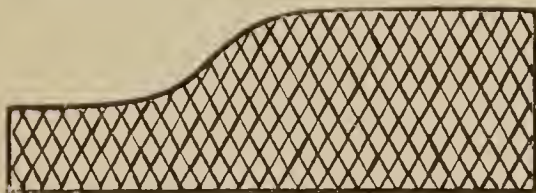
| Distance between supports in feet. | 9 inch I. | | | Distance between supports in feet. | 8 inch I. | | |
|---|------------|------------|------------|---|---------------|---------------|---------------|
| | 30 lbs. | 25 lbs. | 21 lbs. | | 25.25 lbs. | 20.25 lbs. | 17.75 lbs. |
| 10 | 12.18 | 11.00 | 10.06 | 5 | 18.31 | 16.21 | 15.17 |
| 11 | 11.07 | 10.00 | 9.15 | 6 | 15.26 | 13.51 | 12.64 |
| 12 | 10.15 | 9.17 | 8.39 | 7 | 13.08 | 11.58 | 10.83 |
| 13 | 9.36 | 8.46 | 7.74 | 8 | 11.44 | 10.13 | 9.48 |
| 14 | 8.70 | 7.86 | 7.19 | 9 | 10.17 | 9.01 | 8.43 |
| 15 | 8.12 | 7.34 | 6.71 | 10 | 9.15 | 8.11 | 7.58 |
| | | | | 11 | 8.32 | 7.37 | 6.89 |
| 16 | 7.61 | 6.88 | 6.29 | 12 | 7.63 | 6.76 | 6.32 |
| 17 | 7.16 | 6.47 | 5.92 | 13 | 7.04 | 6.24 | 5.83 |
| 18 | 6.76 | 6.11 | 5.60 | | | | |
| 19 | 6.41 | 5.79 | 5.30 | 14 | 6.54 | 5.79 | 5.42 |
| 20 | 6.09 | 5.50 | 5.03 | 15 | 6.10 | 5.40 | 5.06 |
| 21 | 5.80 | 5.24 | 4.79 | 16 | 5.72 | 5.07 | 4.74 |
| 22 | 5.53 | 5.00 | 4.57 | 17 | 5.38 | 4.76 | 4.46 |
| 23 | 5.29 | 4.78 | 4.36 | 18 | 5.08 | 4.50 | 4.21 |
| 24 | 5.07 | 4.58 | 4.19 | 19 | 4.82 | 4.27 | 3.99 |
| 25 | 4.87 | 4.40 | 4.02 | 20 | 4.58 | 4.05 | 3.79 |
| 26 | 4.68 | 4.23 | 3.87 | 21 | 4.36 | 3.86 | 3.61 |

Safe load includes weight of Beam, Maximum fiber strain of 16,000 lbs. per square inch.

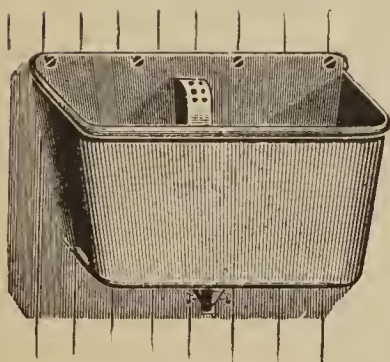
(Continued on page 156)



No. 1900



No. 1901



No. 1902



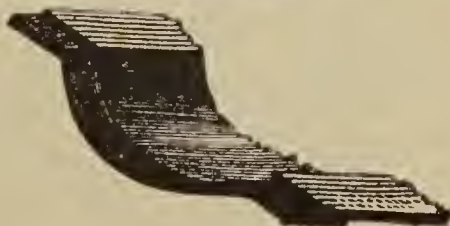
No. 1903



No. 1905



No. 1904



No. 1906

No. 1907. Corner feed boxes, with food guard 16 by 10 inches deep, \$3.00 each.

No. 1908. With extra wide food guard, \$3.60 each.

No. 1909. Stall post, 5 inches diameter, 4 inch groove, 4 feet high, with 6 inch heavy iron base, \$10.00 each.

No. 1910. Magic feed box, standard size, \$4.00 each; feed can be regulated by simple device.

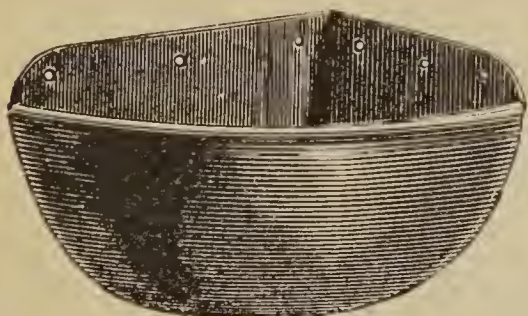
BEAMS—Continued.

Safe Loads, Uniformly Distributed for J. & L. Steel Co.'s Steel Beams, in Tons of 2000 Lbs.

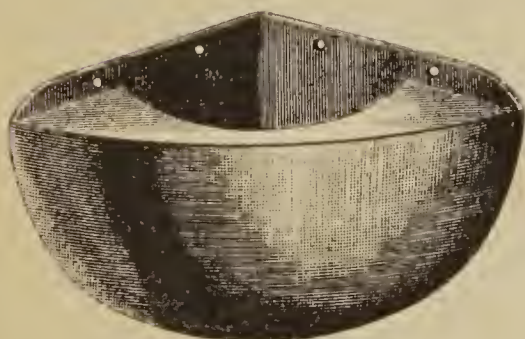
| Distance between supports in feet | 7 inch I. | | Distance between supports in feet. | 6 inch I. | |
|--|------------|------------|---|---------------|---------------|
| | 20 lbs. | 15 lbs. | | 17.25 lbs. | 12.25 lbs. |
| 8 | 8.04 | 6.90 | 5 | 9.31 | 7.74 |
| 9 | 7.15 | 6.13 | 6 | 7.76 | 6.45 |
| 10 | 6.44 | 5.52 | 7 | 6.65 | 5.53 |
| 11 | 5.85 | 5.02 | 8 | 5.82 | 4.81 |
| 12 | 5.36 | 4.60 | 9 | 5.17 | 4.30 |
| 13 | 4.95 | 4.25 | 10 | 4.66 | 3.87 |
| 14 | 4.60 | 3.94 | | | |
| 15 | 4.29 | 3.68 | 11 | 4.23 | 3.52 |
| 16 | 4.02 | 3.45 | 12 | 3.88 | 3.23 |
| 17 | 3.79 | 3.25 | 13 | 3.58 | 2.98 |
| | | | 14 | 3.33 | 2.77 |
| 18 | 3.57 | 3.07 | 15 | 3.10 | 2.58 |
| 19 | 3.37 | 2.91 | 16 | 2.91 | 2.42 |
| 20 | 3.22 | 2.76 | 17 | 2.74 | 2.28 |
| 21 | 3.06 | 2.63 | 18 | 2.59 | 2.15 |
| 22 | 2.93 | 2.51 | 19 | 2.45 | 2.04 |
| 23 | 2.80 | 2.40 | 20 | 2.33 | 1.93 |
| 24 | 2.68 | 2.30 | 21 | 2.22 | 1.84 |
| 25 | 2.57 | 2.21 | 22 | 2.12 | 1.76 |

Safe load includes weight of Beam. Maximum fiber strain of 16,000 lbs. to square inch.

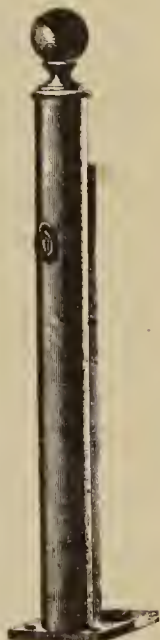
(Continued on page 158)



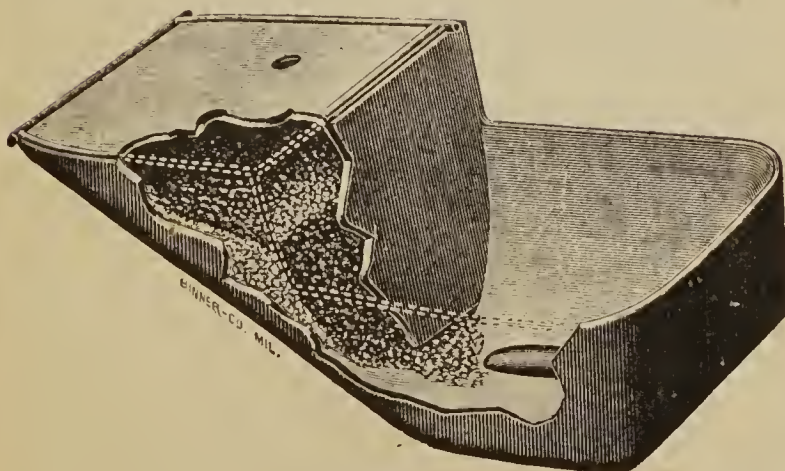
No. 1907



No. 1908



No. 1909



No. 1910

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

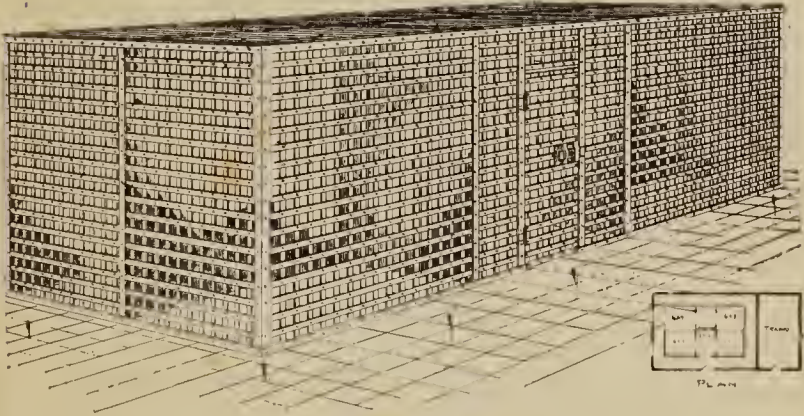
Jail, Prison and Asylum Cells. Any style and make, chilled steel and iron bar cages, cannot be sawed or broken, ribbon steel safety cages and heavy wire guards, etc. Estimates, plans and details submitted free of charge.

BEAMS—Concluded.

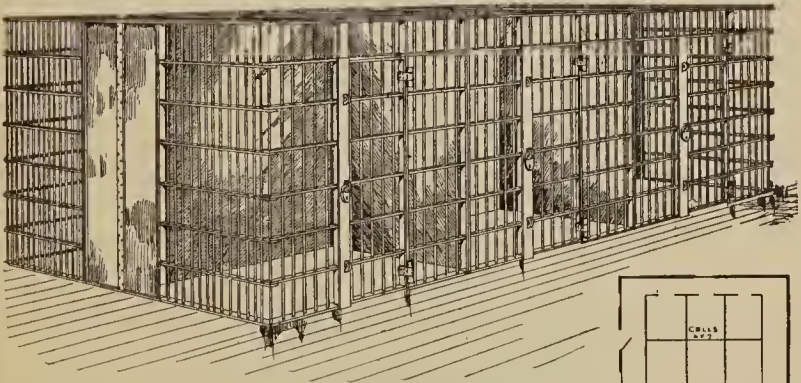
Safe Loads, Uniformly Distributed for J. & L. Steel Co.'s Steel Beams, in Tons of 2000 Lbs.

| Dist. betw. sup'ts in ft. | 5 inch I. | | Dist. betw. sup'ts in ft. | 4 inch I. | | Dist. betw. sup'ts in ft. | 3 inch I. | |
|------------------------------------|---------------|--------------|------------------------------------|--------------|-------------|------------------------------------|-------------|-------------|
| | 14.75 lbs. | 9.75 lbs. | | 10.5 lbs. | 7.5 lbs. | | 7.5 lbs. | 5.5 lbs. |
| 5 | 6.47 | 5.16 | 5 | 3.81 | 3.18 | 5 | 2.08 | 1.76 |
| 6 | 5.39 | 4.30 | 6 | 3.17 | 2.65 | 6 | 1.73 | 1.47 |
| 7 | 4.62 | 3.68 | 7 | 2.72 | 2.27 | 7 | 1.49 | 1.26 |
| 8 | 4.04 | 3.22 | 8 | 2.38 | 1.90 | 8 | 1.30 | 1.10 |
| 9 | 3.59 | 2.87 | 9 | 2.12 | 1.77 | 9 | 1.16 | .98 |
| 10 | 3.23 | 2.58 | 10 | 1.90 | 1.59 | 10 | 1.04 | .88 |
| 11 | 2.94 | 2.34 | 11 | 1.73 | 1.45 | 11 | .95 | .80 |
| 12 | 2.69 | 2.15 | 12 | 1.59 | 1.33 | 12 | .87 | .73 |
| 13 | 2.49 | 1.98 | 13 | 1.46 | 1.22 | 13 | .80 | .68 |
| 14 | 2.31 | 1.84 | 14 | 1.36 | 1.14 | 14 | .74 | .63 |
| 15 | 2.16 | 1.72 | 15 | 1.27 | 1.06 | 15 | .69 | .59 |
| 16 | 2.02 | 1.61 | 16 | 1.19 | .99 | 16 | .65 | .55 |
| 17 | 1.90 | 1.52 | 17 | 1.12 | .94 | 17 | .61 | .52 |
| 18 | 1.80 | 1.43 | 18 | 1.06 | .88 | 18 | .58 | .49 |
| 19 | 1.70 | 1.36 | 19 | 1.00 | .82 | 19 | .55 | .46 |
| 20 | 1.62 | 1.29 | 20 | .95 | .79 | 20 | .52 | .44 |
| 21 | 1.54 | 1.23 | 21 | .91 | .75 | 21 | .50 | .42 |
| 22 | 1.47 | 1.17 | 22 | .88 | .72 | 22 | .48 | .40 |

Safe load includes weight of Beam. Maximum fiber strain of 16,000 lbs. to square inch.



No. 1911



No. 1912

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

No. 1913. Solid steel shutters in wrought iron frames, with double lever locking device, \$1.00 per square foot.

Nos. 1914 and 1915. Cast iron wheel and door guards, any size made to order, 8c per pound.

No. 1916. Cast iron vestibule door sills, made to suit, any size or style. Prices upon receipt of details.

No. 1917. Wrought iron area grating, any weight and size; with frame, 12c; without frame, 10c per pound.

CHANNELS.

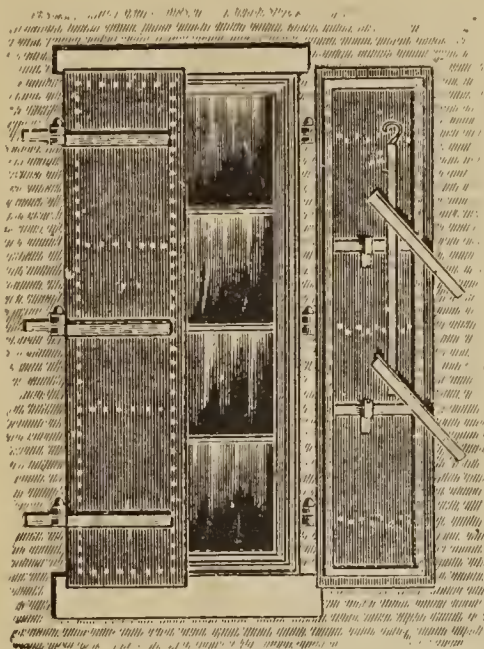
Safe Loads, Uniformly Distributed for J. & L. Steel Co.'s Steel Channels, in Tons of 2000 Lbs.

| 15 inch. | | | 12 inch. | | |
|---------------------------|---------|---------|---------------------------|---------|-----------|
| Dist. betw. sup'ts in ft. | 55 lbs. | 33 lbs. | Dist. betw. sup'ts in ft. | 40 lbs. | 20.5 lbs. |
| 10 | 30.85 | 22.22 | 10 | 17.50 | 11.38 |
| 11 | 28.05 | 20.20 | 11 | 15.91 | 10.35 |
| 12 | 25.71 | 18.52 | 12 | 14.59 | 9.48 |
| 13 | 23.73 | 17.10 | 13 | 13.46 | 8.76 |
| 14 | 22.04 | 15.87 | 14 | 12.50 | 8.13 |
| 15 | 20.57 | 14.82 | 15 | 11.67 | 7.59 |
| 16 | 19.28 | 13.89 | 16 | 10.94 | 7.12 |
| 17 | 18.15 | 13.07 | 17 | 10.30 | 6.69 |
| 18 | 17.14 | 12.35 | 18 | 9.72 | 6.33 |
| 19 | 16.24 | 11.69 | 19 | 9.21 | 5.99 |
| 20 | 15.43 | 11.11 | 20 | 8.75 | 5.69 |
| 21 | 14.69 | 10.58 | 21 | 8.34 | 5.42 |
| 22 | 14.02 | 10.10 | 22 | 7.96 | 5.18 |
| 23 | 13.41 | 9.66 | 23 | 7.61 | 4.95 |
| 24 | 12.86 | 9.26 | 24 | 7.29 | 4.74 |
| 25 | 12.34 | 8.89 | 25 | 7.00 | 4.55 |
| 26 | 11.87 | 8.55 | 26 | 6.73 | 4.38 |
| 27 | 11.43 | 8.23 | 27 | 6.48 | 4.22 |
| 28 | 11.02 | 7.94 | 28 | 6.25 | 4.07 |
| 29 | 10.64 | 7.66 | 29 | 6.04 | 3.92 |
| 30 | 10.28 | 7.41 | 30 | 5.83 | 3.79 |

Safe load includes weight of Channel. Maximum fiber strain of 16,000 lbs. to square inch.

(Continued on page 162)

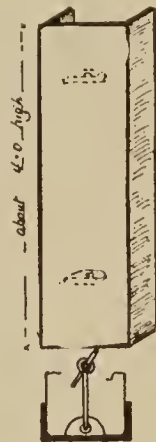
SPOKANE ORNAMENTAL IRON & WIRE WORKS.



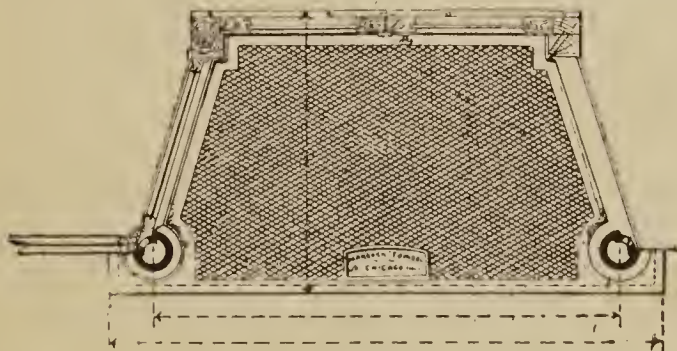
No. 1913



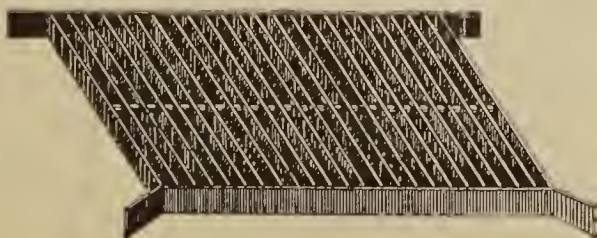
No. 1914



No. 1915



No. 1916



No. 1917

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

No. 1918. Manholes, size of cut, \$14.00 each.

No. 1919. Ash doors, 10 by 10 inch, \$2.40; 12 by 12 inch, \$2.80; 14 by 16 inch, \$6.00; 16 by 16 inch, \$9.00; 18 by 18 inch, \$10.00; 24 by 24 inch, \$18.00; 24 by 36 inch, \$22.00 each.

No. 1920. Shutter eyes, 60c per pair.

No. 1921. Cement sidewalk lights, with plain or prismatic glass tile, iron framing and glass, complete for erection, made to suit any size; with plain glass tile, \$2.40 per square foot; with prismatic tile, \$4.00 per square foot. Any cement worker can easily erect same in first class shape.

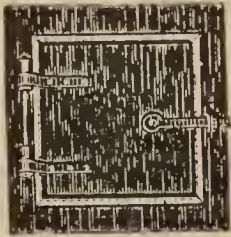
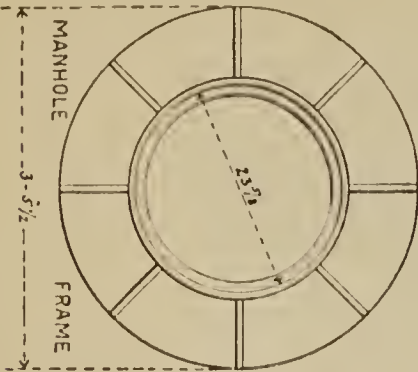
CHANNELS—Continued.

Safe Loads, Uniformly Distributed for J. & L. Steel Co.'s Steel Channels, in Tons of 2000 Lbs.

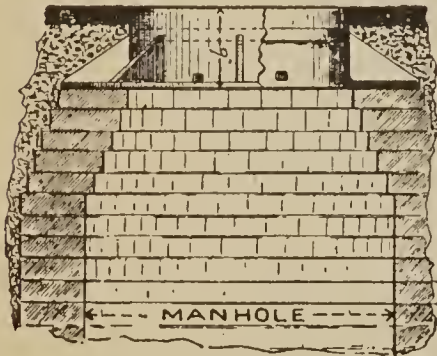
| 10 inch. | | | 9 inch. | | |
|------------------------------|------------|------------|------------------------------|------------|---------------|
| Dist. betw. sup'ts in ft. | 35 lbs. | 15 lbs. | Dist. betw. sup'ts in ft. | 25 lbs. | 13.25 lbs. |
| 10 | 12.36 | 7.13 | 10 | 8.37 | 5.61 |
| 11 | 11.24 | 6.49 | 11 | 7.61 | 5.10 |
| 12 | 10.30 | 5.94 | 12 | 6.98 | 4.67 |
| 13 | 9.51 | 5.49 | 13 | 6.44 | 4.31 |
| 14 | 8.83 | 5.10 | 14 | 5.98 | 4.01 |
| 15 | 8.24 | 4.75 | 15 | 5.58 | 3.74 |
| 16 | 7.73 | 4.46 | 16 | 5.23 | 3.51 |
| 17 | 7.27 | 4.20 | 17 | 4.92 | 3.30 |
| 18 | 6.87 | 3.96 | 18 | 4.65 | 3.12 |
| 19 | 6.51 | 3.75 | 19 | 4.41 | 2.95 |
| 20 | 6.18 | 3.57 | 20 | 4.19 | 2.80 |
| 21 | 5.89 | 3.44 | 21 | 3.99 | 2.67 |
| 22 | 5.62 | 3.24 | 22 | 3.81 | 2.55 |
| 23 | 5.37 | 3.10 | 23 | 3.64 | 2.44 |
| 24 | 5.15 | 2.97 | 24 | 3.49 | 2.34 |
| 25 | 4.95 | 2.85 | 25 | 3.35 | 2.24 |
| 26 | 4.75 | 2.74 | 26 | 3.22 | 2.16 |
| 27 | 4.58 | 2.64 | 27 | 3.10 | 2.08 |
| 28 | 4.41 | 2.55 | 28 | 2.99 | 2.01 |
| 29 | 4.26 | 2.46 | 29 | 2.89 | 1.93 |
| 30 | 4.12 | 2.38 | 30 | 2.79 | 1.87 |

Safe load includes weight of Channel. Maximum fiber strain of 16,000 lbs. to square inch.

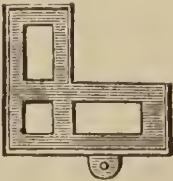
(Continued on page 164)



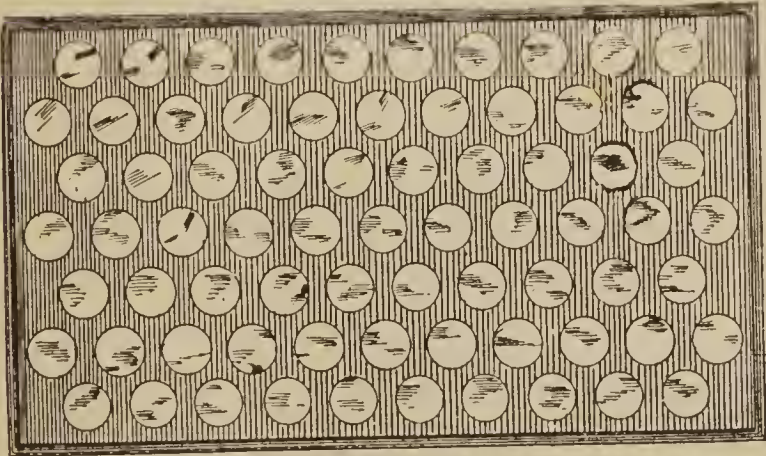
No. 1919



No. 1918



SIDE VIEW.
No. 1920



No. 1921

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

No. 1922. Solid cast iron coal hole, standard size 16 inches in diameter, \$10.00 each.

No. 1923. Illuminated coal hole, same size, \$16.00 each.

No. 1924. Heavy track drain, 18 by 24 inches, \$24.00 each.

No. 1925. Cast iron treads and sills; prices according to details and quantity required.

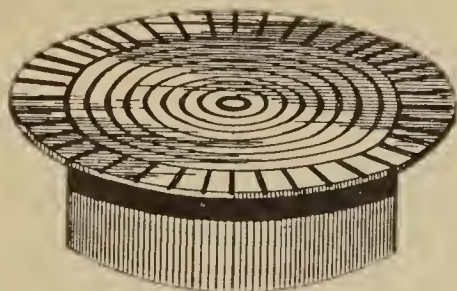
CHANNELS—Continued.

Safe Loads, Uniformly Distributed for J. & L. Steel Co.'s Steel Channels, in Tons of 2000 Lbs.

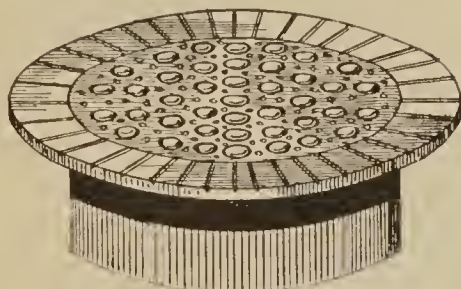
| 8 inch. | | | 7 inch. | | |
|------------------------------|---------------|---------------|------------------------------|---------------|--------------|
| Dist. betw. sup'ts in ft. | 21.25 lbs. | 11.25 lbs. | Dist. betw. sup'ts in ft. | 19.75 lbs. | 9.75 lbs. |
| 10 | 6.40 | 4.32 | 5 | 10.09 | 6.43 |
| 11 | 5.82 | 3.93 | 6 | 8.41 | 5.36 |
| 12 | 5.33 | 3.60 | 7 | 7.20 | 4.59 |
| 13 | 4.92 | 3.32 | 8 | 6.30 | 4.02 |
| 14 | 4.57 | 3.08 | 9 | 5.61 | 3.57 |
| 15 | 4.27 | 2.88 | 10 | 5.04 | 3.22 |
| 16 | 4.00 | 2.70 | 11 | 4.58 | 2.92 |
| 17 | 3.76 | 2.54 | 12 | 4.20 | 2.68 |
| 18 | 3.56 | 2.40 | 13 | 3.88 | 2.47 |
| 19 | 3.37 | 2.27 | 14 | 3.60 | 2.29 |
| 20 | 3.20 | 2.16 | 15 | 3.36 | 2.14 |
| 21 | 3.05 | 2.06 | 16 | 3.15 | 2.01 |
| 22 | 2.91 | 1.96 | 17 | 2.97 | 1.89 |
| 23 | 2.78 | 1.88 | 18 | 2.80 | 1.78 |
| 24 | 2.67 | 1.80 | 19 | 2.64 | 1.69 |
| 25 | 2.56 | 1.73 | 20 | 2.52 | 1.61 |
| 26 | 2.46 | 1.66 | 21 | 2.40 | 1.53 |
| 27 | 2.37 | 1.60 | 22 | 2.29 | 1.46 |
| 28 | 2.28 | 1.54 | 23 | 2.19 | 1.40 |
| 29 | 2.21 | 1.49 | 24 | 2.10 | 1.34 |
| 30 | 2.13 | 1.42 | 25 | 2.02 | 1.29 |

Safe load includes weight of Channel. Maximum fiber strain of 16,000 lbs. to square inch.

(Continued on page 166)



No. 1922



No. 1923



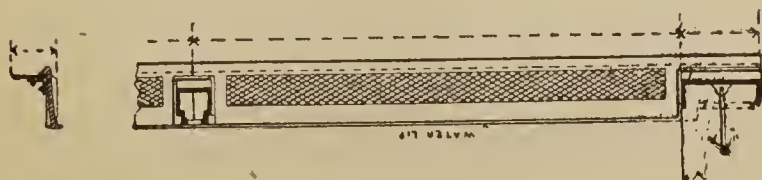
No. 1924



No. 1925



WOOD TREAD



No. 1926

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

No. 1927—Girder.

No. 1928—Girder.

No. 1929—Lintel.

No. 1930—Lintel.

For estimates, give sizes, number and thickness of metal required, or state safe loads for beams and girders. We can quote you promptly and furnish in most cases from local stock.

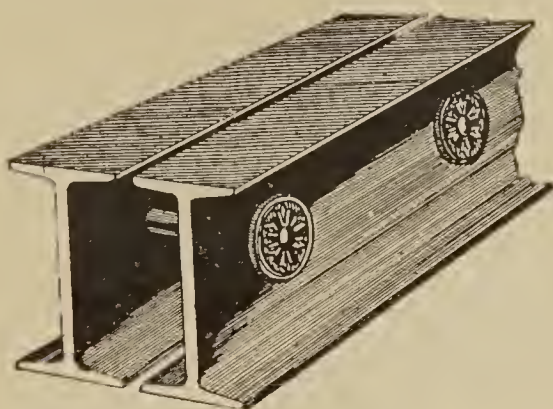
CHANNELS—Continued.

Safe Loads, Uniformly Distributed for J. & L. Steel Co.'s Steel Channels, in Tons of 2000 Lbs.

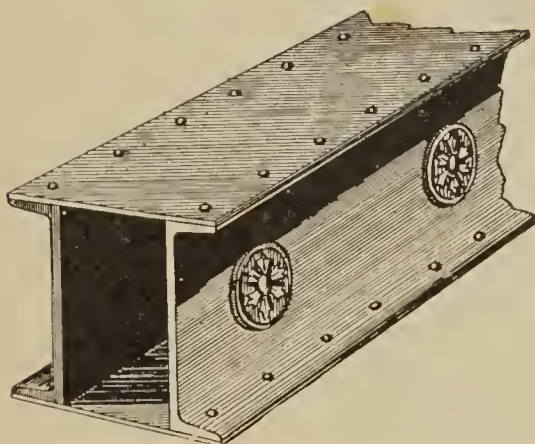
| 6 inch. | | | 5 inch. | | |
|------------------------------|--------------|-----------|------------------------------|--------------|-------------|
| Dist. betw. sup'ts in ft. | 15.5 lbs. | 8 lbs. | Dist. betw. sup'ts in ft. | 11.5 lbs. | 6.5 lbs. |
| 5 | 6.97 | 4.62 | 5 | 4.47 | 8.16 |
| 6 | 5.81 | 3.85 | 6 | 3.73 | 2.64 |
| 7 | 4.98 | 3.30 | 7 | 3.19 | 2.26 |
| 8 | 4.36 | 2.89 | 8 | 2.79 | 1.98 |
| 9 | 3.87 | 2.57 | 9 | 2.48 | 1.76 |
| 10 | 3.49 | 2.31 | 10 | 2.23 | 1.58 |
| 11 | 3.17 | 2.10 | 11 | 2.03 | 1.44 |
| 12 | 2.91 | 1.93 | 12 | 1.86 | 1.32 |
| 13 | 2.68 | 1.78 | 13 | 1.72 | 1.22 |
| 14 | 2.49 | 1.65 | 14 | 1.59 | 1.13 |
| 15 | 2.32 | 1.54 | 15 | 1.49 | 1.05 |
| 16 | 2.18 | 1.44 | 16 | 1.39 | .99 |
| 17 | 2.05 | 1.36 | 17 | 1.31 | .93 |
| 18 | 1.93 | 1.28 | 18 | 1.24 | .88 |
| 19 | 1.84 | 1.22 | 19 | 1.17 | .83 |
| 20 | 1.74 | 1.15 | 20 | 1.11 | .79 |
| 21 | 1.66 | 1.10 | 21 | 1.06 | .75 |
| 22 | 1.58 | 1.05 | 22 | 1.01 | .72 |
| 23 | 1.52 | 1.00 | 23 | .97 | .69 |
| 24 | 1.45 | .96 | 24 | .93 | .66 |
| 25 | 1.39 | .92 | 25 | .89 | .63 |

Safe load includes weight of Channel. Maximum fiber strain of 16,000 lbs. to square inch.

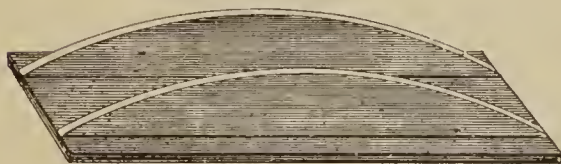
(Continued on page 168)



No. 1927



No. 1928



No. 1929



No. 1930

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

No. 1931. Lintel.

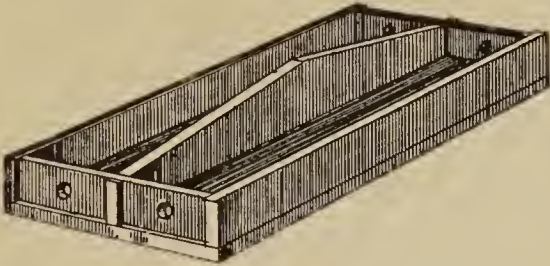
Nos. 1932 to 1938 inclusive. Wrought iron construction anchors, bolts, stirrups and plates. For estimates send number and sizes of materials wanted.

CHANNELS—Concluded.

Safe Loads, Uniformly Distributed for J. & L. Steel Co.'s Steel Channels, in Tons of 2000 Lbs.

| 4 inch. | | | 3 inch. | | |
|------------------------------|--------------|--------------|------------------------------|-----------|-----------|
| Dist. betw. sup'ts in ft. | 7.25 lbs. | 5.25 lbs. | Dist. betw. sup'ts in ft. | 6 lbs. | 4 lbs. |
| 5 | 2.44 | 2.02 | 5 | 1.48 | 1.16 |
| 6 | 2.04 | 1.69 | 6 | 1.23 | .97 |
| 7 | 1.74 | 1.44 | 7 | 1.06 | .83 |
| 8 | 1.53 | 1.26 | 8 | .92 | .73 |
| 9 | 1.36 | 1.12 | 9 | .82 | .65 |
| 10 | 1.22 | 1.01 | 10 | .74 | .58 |
| 11 | 1.11 | .92 | 11 | .67 | .53 |
| 12 | 1.02 | .84 | 12 | .62 | .48 |
| 13 | .94 | .78 | 13 | .57 | .45 |
| 14 | .87 | .76 | 14 | .53 | .41 |
| 15 | .81 | .67 | 15 | .49 | .39 |
| 16 | .76 | .63 | 16 | .46 | .36 |
| 17 | .72 | .60 | 17 | .43 | .34 |
| 18 | .68 | .56 | 18 | .41 | .32 |
| 19 | .64 | .53 | 19 | .39 | .31 |
| 20 | .62 | .51 | 20 | .37 | .29 |
| 21 | .58 | .49 | 21 | .35 | .28 |
| 22 | .55 | .46 | 22 | .33 | .26 |
| 23 | .53 | .44 | 23 | .32 | .25 |
| 24 | .51 | .42 | 24 | .31 | .24 |
| 25 | .49 | .40 | 25 | .29 | .23 |

Safe load includes weight of Channel. Maximum fiber strain of 16,000 lbs. to square inch.



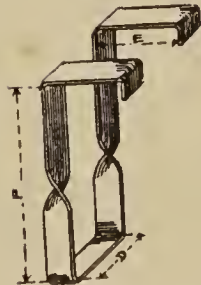
No. 1931



No. 1932



No. 1933



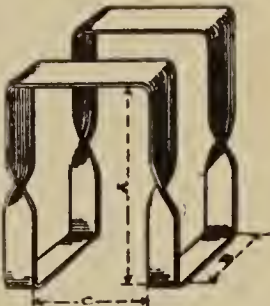
No. 1937



No. 1934



No. 1935



No. 1938



No. 1936

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

Cast iron grate bars for any fuel made to order. Give size and style of grates wanted.

TEES.

Safe Loads, in Tons of 2000 Lbs., Uniformly Distributed, for Jones & Laughlin Steel Co.'s Tees.

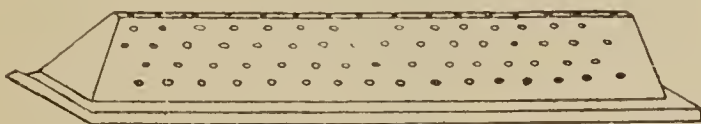
| Sect. No. | Size flange by stem. | Distance Between Supports in Feet. | | | | | | | | | |
|--------------|-------------------------|------------------------------------|------|------|------|------|------|------|------|------|------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| T20 | 4 x 5 | 13.40 | 6.70 | 4.47 | 3.35 | 2.68 | 2.23 | 1.91 | 1.68 | 1.49 | 1.34 |
| T21 | 4 x 4 3/4 | 12.22 | 6.11 | 4.07 | 3.06 | 2.44 | 2.04 | 1.75 | 1.53 | 1.36 | 1.22 |
| T22 | 4 x 4 1/2 | 11.03 | 5.51 | 3.67 | 2.76 | 2.20 | 1.84 | 1.57 | 1.38 | 1.22 | 1.10 |
| T1 | 4 x 4 | 8.75 | 4.37 | 2.92 | 2.19 | 1.75 | 1.46 | 1.25 | 1.09 | .97 | .88 |
| T2 | 4 x 4 | 7.71 | 3.86 | 2.57 | 1.93 | 1.54 | 1.29 | 1.10 | .96 | .86 | .77 |
| T3 | 3 1/2 x 3 1/2 | 5.53 | 2.77 | 1.84 | 1.38 | 1.11 | .92 | .79 | .69 | .61 | .55 |
| T4 | 3 1/2 x 3 1/2 | 4.79 | 2.39 | 1.60 | 1.20 | .96 | .80 | .69 | .60 | .53 | .48 |
| T23 | 3 1/2 x 3 | 4.09 | 2.04 | 1.36 | 1.02 | .82 | .68 | .58 | .51 | .45 | .41 |
| T24 | 3 1/2 x 3 | 3.54 | 1.77 | 1.18 | .88 | .71 | .59 | .51 | .44 | .39 | .35 |
| T26 | 3 x 3 | 5.39 | 2.69 | 1.80 | 1.35 | 1.08 | .90 | .77 | .67 | .60 | .54 |
| T25 | 3 x 3 | 4.67 | 2.33 | 1.56 | 1.17 | .93 | .78 | .67 | .58 | .52 | .47 |
| T5 | 3 x 3 | 3.58 | 1.79 | 1.19 | .90 | .72 | .60 | .51 | .45 | .40 | .36 |

Safe loads include weight of Tees. Maximum fiber strain 12,000 lbs, per square inch.

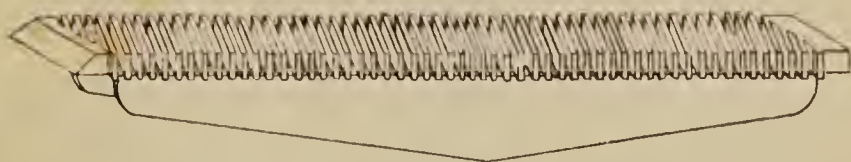
(Continued on page 172)



No. 1939



No. 1940



No. 1941



No. 1942



No. 1943

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

Cast iron columns, mullions, capitals or bases for exterior or interior finish, castings smooth and true to pattern.

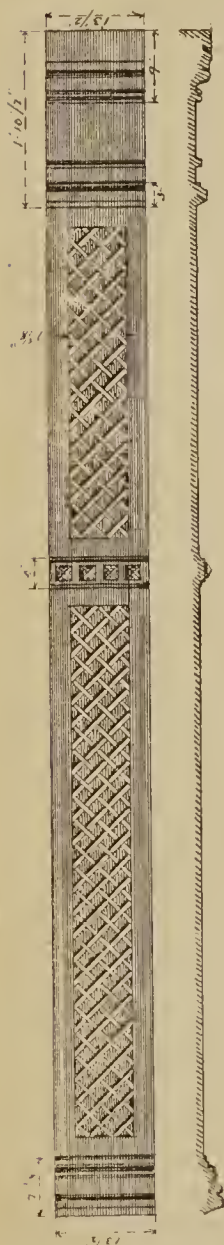
SEND US YOUR PLANS FOR PROMPT ESTIMATES.

TEES—Concluded.

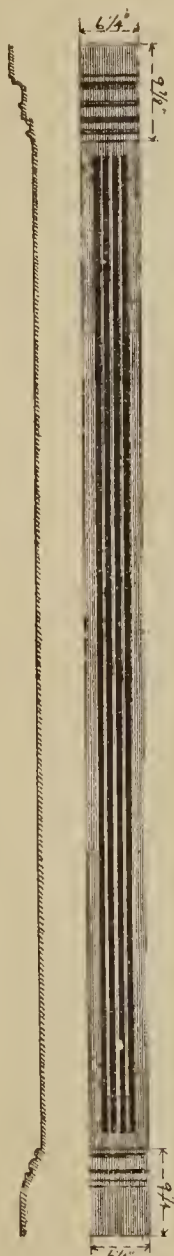
Safe Loads, in Tons of 2000 Lbs., Uniformly Distributed, for Jones & Laughlin Steel Co.'s Tees.

| Sect. No. | Size flange by stem. | Distance Between Supports in Feet. | | | | | | | | | |
|--------------|-------------------------|------------------------------------|------|------|-----|-----|-----|-----|-----|-----|-----|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| T6 | 3 x 3 | 3.08 | 1.54 | 1.03 | .77 | .62 | .51 | .44 | .38 | .34 | .31 |
| T7 | 2 1/2 x 2 1/2 | 2.44 | 1.22 | .81 | .61 | .49 | .41 | .35 | .30 | .27 | .24 |
| T8 | 2 1/2 x 2 1/2 | 2.09 | 1.04 | .70 | .52 | .42 | .35 | .30 | .26 | .23 | .21 |
| T28 | 2 1/2 x 2 | 1.27 | .64 | .42 | .32 | .25 | .21 | .18 | .16 | .14 | .13 |
| T9 | 2 1/4 x 2 1/4 | 1.60 | .80 | .53 | .40 | .32 | .27 | .23 | .20 | .18 | .16 |
| T10 | 2 1/4 x 2 1/4 | 1.31 | .65 | .44 | .33 | .26 | .22 | .19 | .16 | .15 | .13 |
| T11 | 2 x 2 | 1.02 | .51 | .34 | .26 | .20 | .17 | .15 | .13 | .11 | .10 |
| T27 | 2 1/2 x 1 3/4 | .77 | .39 | .26 | .19 | .15 | .13 | .11 | .10 | .09 | .08 |
| T13 | 1 3/4 x 1 3/4 | .77 | .38 | .26 | .19 | .15 | .13 | .11 | .10 | .09 | .08 |
| T12 | 1 3/4 x 1 3/4 | .51 | .26 | .17 | .13 | .10 | .09 | .07 | .06 | .06 | .05 |
| T14 | 1 1/2 x 1 1/2 | .55 | .28 | .18 | .14 | .11 | .09 | .08 | .07 | .06 | .06 |
| T15 | 1 1/2 x 1 1/2 | .46 | .23 | .15 | .11 | .09 | .08 | .07 | .06 | .05 | .05 |

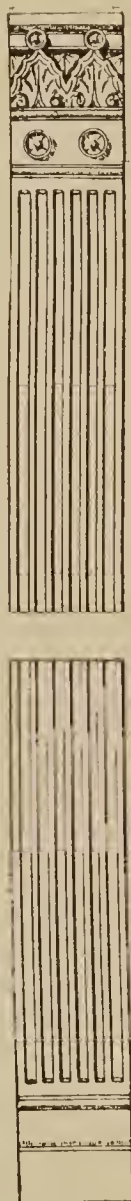
Safe loads include weight of Tees. Maximum fiber strain 12,000 lbs. per square inch.



No. 1944



No. 1945



No. 1946

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

ANGLES.

Safe Loads, in Tons of 2000 Lbs., Uniformly Distributed, for
Jones & Laughlin Steel Co.'s Angles With Equal Legs.

| | | | Distance Between Supports in Feet. | | | | | | | | | |
|-----------------|-------------------|-----------------|------------------------------------|-------|-------|------|------|------|------|------|------|------|
| Size of Angle. | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 6 | x 6 | x $\frac{1}{2}$ | 16.28 | 8.14 | 5.43 | 4.07 | 3.26 | 2.72 | 2.33 | 2.04 | 1.81 | 1.63 |
| 6 | x 6 | x $\frac{3}{8}$ | 30.56 | 15.28 | 10.19 | 7.64 | 6.11 | 5.09 | 4.37 | 3.82 | 3.40 | 3.06 |
| 4 | x 4 | x $\frac{3}{8}$ | 6.08 | 3.04 | 2.03 | 1.52 | 1.22 | 1.01 | .87 | .76 | .68 | .61 |
| 4 | x 4 | x $\frac{3}{4}$ | 11.24 | 5.62 | 3.75 | 2.81 | 2.25 | 1.87 | 1.61 | 1.41 | 1.25 | 1.12 |
| 3 $\frac{1}{2}$ | x 3 $\frac{1}{2}$ | x $\frac{3}{8}$ | 4.60 | 2.30 | 1.53 | 1.15 | .92 | .77 | .66 | .58 | .51 | .46 |
| 3 $\frac{1}{2}$ | x 3 $\frac{1}{2}$ | x $\frac{3}{4}$ | 8.12 | 4.06 | 2.71 | 2.03 | 1.62 | 1.35 | 1.16 | 1.02 | .90 | .81 |
| 3 | x 3 | x $\frac{3}{4}$ | 2.32 | 1.16 | .77 | .58 | .46 | .39 | .33 | .29 | .26 | .23 |
| 3 | x 3 | x $\frac{5}{8}$ | 5.20 | 2.60 | 1.73 | 1.30 | 1.04 | .87 | .74 | .65 | .58 | .52 |
| 2 $\frac{1}{2}$ | x 2 $\frac{1}{2}$ | x $\frac{1}{4}$ | 1.60 | .80 | .53 | .40 | .32 | .27 | .23 | .20 | .18 | .16 |
| 2 $\frac{1}{2}$ | x 2 $\frac{1}{2}$ | x $\frac{1}{2}$ | 2.92 | 1.46 | .97 | .73 | .58 | .49 | .42 | .37 | .32 | .29 |

| | | | Distance Between Supports in Feet. | | | | |
|-----------------|-------------------|-----------------|------------------------------------|------|------|------|------|
| Size of Angle. | | | 1 | 2 | 3 | 4 | 5 |
| 2 | x 2 | x $\frac{1}{8}$ | .60 | .30 | .20 | .15 | .12 |
| 2 | x 2 | x 7-16 | 1.60 | .80 | .53 | .40 | .32 |
| 1 $\frac{3}{4}$ | x 1 $\frac{3}{4}$ | x $\frac{1}{8}$ | .44 | .22 | .15 | .11 | .09 |
| 1 $\frac{3}{4}$ | x 1 $\frac{3}{4}$ | x 7-16 | 1.20 | .60 | .40 | .30 | .24 |
| 1 $\frac{1}{2}$ | x 1 $\frac{1}{2}$ | x $\frac{1}{8}$ | .31 | .16 | .10 | .08 | .06 |
| 1 $\frac{1}{2}$ | x 1 $\frac{1}{2}$ | x $\frac{3}{8}$ | .77 | .39 | .26 | .19 | .15 |
| 1 $\frac{1}{4}$ | x 1 $\frac{1}{4}$ | x $\frac{1}{8}$ | .20 | .098 | .065 | .049 | .039 |
| 1 $\frac{1}{4}$ | x 1 $\frac{1}{4}$ | x $\frac{1}{4}$ | .36 | .18 | .12 | .09 | .072 |
| 1 | x 1 | x $\frac{1}{8}$ | .12 | .06 | .04 | .03 | .025 |
| 1 | x 1 | x 3-16 | .17 | .086 | .058 | .43 | .035 |
| $\frac{3}{4}$ | x $\frac{3}{4}$ | x $\frac{1}{8}$ | .068 | .034 | .023 | .017 | .014 |
| $\frac{3}{4}$ | x $\frac{3}{4}$ | x 3-16 | .084 | .041 | .027 | .020 | .016 |

| | | | Distance Between Supports in Feet. | | | | |
|-----------------|-------------------|-----------------|------------------------------------|------|------|------|------|
| Size of Angle. | | | 6 | 7 | 8 | 9 | 10 |
| 2 | x 2 | x $\frac{1}{8}$ | .10 | .09 | .08 | .07 | .06 |
| 2 | x 2 | x 7-16 | .27 | .23 | .20 | .18 | .16 |
| 1 $\frac{3}{4}$ | x 1 $\frac{3}{4}$ | x $\frac{1}{8}$ | .07 | .06 | .06 | .05 | .04 |
| 1 $\frac{3}{4}$ | x 1 $\frac{3}{4}$ | x 7-16 | .20 | .17 | .15 | .13 | .12 |
| 1 $\frac{1}{2}$ | x 1 $\frac{1}{2}$ | x $\frac{1}{8}$ | .05 | .04 | .04 | .03 | .03 |
| 1 $\frac{1}{2}$ | x 1 $\frac{1}{2}$ | x $\frac{3}{8}$ | .13 | .11 | .10 | .09 | .08 |
| 1 $\frac{1}{4}$ | x 1 $\frac{1}{4}$ | x $\frac{1}{8}$ | .033 | .028 | .024 | .022 | .02 |
| 1 $\frac{1}{4}$ | x 1 $\frac{1}{4}$ | x $\frac{1}{4}$ | .06 | .051 | .045 | .04 | .036 |
| 1 | x 1 | x $\frac{1}{8}$ | .021 | .018 | .016 | .014 | .012 |
| 1 | x 1 | x 3-16 | .029 | .025 | .022 | .019 | .017 |
| $\frac{3}{4}$ | x $\frac{3}{4}$ | x $\frac{1}{8}$ | .011 | .010 | .009 | .008 | .007 |
| $\frac{3}{4}$ | x $\frac{3}{4}$ | x 3-16 | .013 | .012 | .010 | .010 | .009 |

Safe loads include weight of Angle. Maximum fiber strain
12,000 lbs. per square inch. Neutral axis through center of
gravity parallel to one leg.

(Continued on page 176)



No. 1947



No. 1948

SPOKANE ORNAMENTAL IRON & WIRE WORKS.

ANGLES—Concluded.

Safe Loads, in Tons of 2000 Lbs., Uniformly Distributed, for J. & L. Steel Co.'s Angles With Unequal Legs. Short Leg Vertical

| Size of Angle. | Distance Between Supports in Feet. | | | | | | | | | |
|------------------------|------------------------------------|------|------|------|------|------|------|------|------|------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 6 x 4 x $\frac{3}{8}$ | 6.40 | 3.20 | 2.13 | 1.60 | 1.28 | 1.07 | .91 | .80 | .71 | .64 |
| 6 x 4 x $\frac{7}{8}$ | 12.60 | 6.30 | 4.20 | 3.15 | 2.52 | 2.10 | 1.80 | 1.58 | 1.40 | 1.26 |
| 6 x 3½ x $\frac{3}{8}$ | 4.92 | 2.46 | 1.64 | 1.23 | .98 | .82 | .70 | .62 | .55 | .49 |
| 6 x 3½ x $\frac{7}{8}$ | 9.64 | 4.82 | 3.21 | 2.41 | 1.93 | 1.61 | 1.38 | 1.21 | 1.07 | .96 |
| 5 x 3½ x $\frac{3}{8}$ | 4.80 | 2.40 | 1.60 | 1.20 | .96 | .80 | .69 | .60 | .53 | .48 |
| 5 x 3½ x $\frac{3}{4}$ | 8.72 | 4.36 | 2.91 | 2.18 | 1.74 | 1.45 | 1.25 | 1.09 | .97 | .87 |
| 5 x 3 x $\frac{3}{8}$ | 3.56 | 1.78 | 1.19 | .89 | .71 | .59 | .51 | .45 | .40 | .36 |
| 5 x 3 x $\frac{3}{4}$ | 6.44 | 3.22 | 2.15 | 1.61 | 1.29 | 1.07 | .92 | .81 | .72 | .64 |

| Size of Angle. | Distance Between Supports in Feet. | | | | | | | | | |
|-------------------------|------------------------------------|------|------|------|------|------|-----|-----|-----|-----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 3½ x 3 x $\frac{3}{8}$ | 3.32 | 1.66 | 1.11 | .83 | .66 | .55 | .47 | .42 | .37 | .33 |
| 3½ x 3 x $\frac{3}{4}$ | 6.08 | 3.04 | 2.03 | 1.52 | 1.22 | 1.01 | .87 | .76 | .68 | .61 |
| 3½ x 2½ x $\frac{1}{4}$ | 1.64 | .82 | .55 | .41 | .33 | .27 | .23 | .21 | .18 | .16 |
| 3½ x 2½ x $\frac{1}{2}$ | 3.24 | 1.62 | 1.08 | .81 | .65 | .54 | .46 | .41 | .36 | .32 |
| 3 x 2½ x $\frac{1}{4}$ | 1.60 | .80 | .53 | .40 | .32 | .27 | .23 | .20 | .18 | .16 |
| 3 x 2½ x $\frac{1}{2}$ | 2.92 | 1.46 | .97 | .73 | .58 | .49 | .42 | .37 | .32 | .29 |
| 2½ x 2 x $\frac{1}{4}$ | .76 | .38 | .25 | .19 | .15 | .13 | .11 | .10 | .08 | .08 |
| 2½ x 2 x $\frac{1}{2}$ | 1.87 | .94 | .62 | .47 | .37 | .31 | .27 | .23 | .21 | .19 |

Safe loads include weight of Angle. Maximum fiber strain 12,000 lbs. per square inch. Neutral axis through center of gravity parallel to long leg.





